

BUILDING CODE

..CITY OF..

BIRMINGHAM, ALA.



1912

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1912



Birmingham, Ala.-- Ordinances, etc.

The Building Code

OF THE

City of Birmingham, Ala.

Adopted by the Board of Commissioners

April 10th, 1912

C. EXUM, President Board of Commissioners

A. O. LANE, Commissioner

JAMES WEATHERLY, Commissioner




COMPILED BY

W. O. MATTHEWS

INSPECTOR OF BUILDINGS

[1912]



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No. 78-C AN ORDINANCE TO PROVIDE A BUILDING CODE FOR THE CITY OF BIRMINGHAM.

Be it Ordained by the Board of Commissioners of the City of Birmingham, as follows:

BUILDING CODE A REMEDIAL ORDINANCE.

SECTION 1. This ordinance is hereby declared to be remedial and is intended to secure the beneficial interest and purposes thereof.

SEC. 2. THIS ORDINANCE TO CONSTITUTE AND BE KNOWN AS THE BUILDING CODE.

The following provisions shall constitute and be known as the Building Code and may be cited as such and presumptively provides for all matters concerning, affecting or relating to the construction, equipment, alteration, repair or removal of buildings or structures erected or to be erected in the City of Birmingham, Alabama.

SEC. 3. NEW BUILDINGS AND BUILDINGS TO BE ALTERED. No excavation, wall, structure, building or part thereof shall hereafter be built or constructed in the City of Birmingham, except in conformity with the provisions of this Code. No building already erected or hereafter to be erected in said City shall be raised, altered, or built upon in any manner, that would be in violation of any of the provisions of this Code, or the approval issued thereunder.

SEC. 4. FILING PLANS AND STATEMENTS FOR PERMITS. (a) Before the excavation for erection, construction or alteration of any building or part of any building, structure or wall or any platform, staging or flooring of any building, structure or premises is commenced, the owner, lessee or agent of either, or the architect or builder employed by such owner or lessee in connection with the proposed erection or alteration, shall submit plans and specifications and details to the Inspector of Buildings of the proposed work and make an application which must

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be signed by the owner or his agent and also the party in charge of the proposed work if so requested by the Inspector of Buildings.

SEC. 5. (b) The said person shall furnish said Inspector of Buildings with a written application or statement under oath, to be administered by the Inspector of Buildings or his assistant, of the locality, dimensions and approximate cost of each and every kind of labor and material to be incorporated in the construction of the proposed building or structure, and the manner of construction of the proposed building or structure or alteration or repairs of the existing building or structure, with the material to be used and whether contract or day labor, if desired by the Inspector of Buildings.

SEC. 6. (c) Said plans, specifications and details may remain in his custody not to exceed ten days, to allow the necessary examination to be made of the same, and if required by the Inspector of Buildings, a copy of said plans and specifications or any of them shall be filed in the office of the Inspector of Buildings, permanently, and no change shall be made in the construction of the proposed work, without consent of the Inspector of Buildings.

SEC. 7. (d) After which, if it shall appear to the Inspector of Buildings that the provisions of this Code are contemplated to be complied with, the Inspector of Buildings shall issue or cause to be issued the permit applied for, after collecting from the applicant the proper fee hereinafter provided for.

SEC. 8. (e) Any permit that has been obtained under a misrepresentation as to the approximate cost or construction of said work, or on failure to execute said work in accordance with the said application, plans and specifications, shall constitute a violation of this Code, and the permit so obtained shall be null and void.

SEC. 9. (f) The Inspector of Buildings shall be entitled to demand additional plans and specifications of all structural work to be submitted to him, if in his judgment, the general plans are not sufficient to obtain the information desired.

SEC. 10. (g) Fees for each building or structure where work costing less than \$25.00, where under the laws, an inspection is required, fifty cents shall be charged therefor. The fees for work costing \$25.00 to \$50.00, shall be

fifty cents. \$50.00 to \$100.00, and inclusive, shall be fifty cents for the first \$50.00 for the permit and five cents for each additional \$5.00 or fractional part thereof. Over \$100.00 shall be on a uniform basis of \$1.00 for the issuance of the permit and one-eighth of one per cent for the full estimated cost of each building or structure.

SEC. 11. (h) No person shall demolish, excavate for or proceed to construct or repair any building or structure within the limits of the City of Birmingham without first obtaining a permit from the Inspector of Buildings, and having the same or number of the same posted at location of said work, except that excavations and foundation may be allowed if plans for the buildings are not completed with the consent of the Inspector of Building.

SEC. 12. (i) Any permit which may be issued by the Inspector of Buildings, pursuant to the provisions of this code, but under which no work is commenced within three months from the time of the issuance, shall expire by limitation.

SEC. 13. (j) This Code applies to municipal and private buildings. The foregoing provisions and all the provisions of this Code, shall apply with equal force to buildings both municipal, and private.

SEC. 14. (k) It shall be the duty of the Inspector of Buildings to obtain and keep in his office, forms for the written statement or applications for applicants to fill out, as required in this Code, said forms having proper blanks for the description of the location of the proposed structure to be erected, altered or repaired, number and height of stories, dimensions of joists and timbers, and their distances apart, dimensions of supporting iron work, if any, for what purpose the building or structure is designed, and such other information applicable to the proposed improvement, as the Inspector of Buildings may require.

SEC. 15. (l) Said form shall also contain an agreement that the owner or owners, his or their architect, agent or agents, will, in all respects, construct the work in accordance with such detailed statements, plans and specifications and in accordance with the laws and ordinances of the City of Birmingham, which said agreement shall be signed by the owner or owners, his architect, agent or agents, and party in charge if desired.

SEC. 16. (m) Any permit issued without an application, statement or agreement to comply with the

laws and ordinances, shall be considered that all the laws and ordinances shall be complied with and the same shall be complied with as though the application, statement and agreement had been approved by the Inspector of Buildings.

SEC. 17. (n) "To be approved under usual restrictions 'written in a permit,'" means that all laws and ordinances are to be complied with, otherwise the permit shall be null and void.

SEC. 18. (o) Should the Inspector of Buildings become convinced that the work under such permit is not proceeding according to the detailed statements, plans and specifications upon which such permit was issued, but is proceeding in violation of the laws and ordinances, it shall be his duty to notify the owner or owners, contractor or his or their agents, that the work is being constructed in violation of the permit and the ordinance, and that the same must be immediately rectified to conform to the laws. If the owner or owners or his or their agents, neglect to comply with said laws or fail to make corrections in 24 hours it shall be the further duty of the Inspector of Buildings to revoke said permit; and notice thereof shall be immediately served upon the owner, agent, superintendent or contractor in charge of the work, and posted on the property. Said notice shall be in writing, signed by the Inspector of Buildings; and after such revocation of permit, no person shall perform any work in or about said structure or premises.

DEFINITIONS.

The following words and phrases are defined as follows:

SEC. 19. ALLEY. Any public thoroughfares less than thirty feet wide.

SEC. 20. ALTERATION. Any change, modification or addition in construction or grade or occupancy.

SEC. 21. AREAS. Open subsurfaces adjacent to a building, street or lot line.

SEC. 22. BASEMENT. A story suitable for business or habitation partially below the level of the adjoining street or ground and below the first tier or floor beams or joists. When a basement ceiling is more than five feet

above the grade of the building line or more than ten feet at an average of the natural or filled grade, it shall be rated as the first story or ground story.

SEC. 23. FOUNDATIONS. All that portion of a building or a structure below the top of footing or basement or cellar floor or the earth upon which the structure rests and walls to grade.

SEC. 24. HEIGHTS OF BUILDINGS. The height of a building shall be measured on the center line of its principal front from the established or natural grade at the building line to the highest point in the coping of flat roofs, or to the deck line of a mansard roof, or to the center height of the highest gable in a pitched roof, or to half the height of a hipped roof. If the grade of the lot or adjoining structure in the rear or along the side of the building falls below the grade of the front height, the height shall be taken in the center of side showing the greatest fall, if the total fall of any side exceed ten feet in length of the building the height shall be measured at the lower-most corner, and when the height is limited it shall be terraced or stepped off at every ten foot change of grade.

SEC. 25. WIDTH OF BUILDINGS. The greatest horizontal dimension of any building shall be considered its length, the next greatest horizontal dimension, its width.

SEC. 26. THE FIRST STORY. The story of the floor of which is at or first above the level of the sidewalk or adjoining ground, if the floor has a story underneath, of ten feet in the clear above the natural or fill grade, in such case it shall be termed the ground floor or story.

SEC. 27. DEAD LOADS. Dead loads shall consist of the actual weight of walls, floors, roofs, partitions, and all permanent construction.

SEC. 28. LIVE LOADS. Live loads shall consist of all imposed, fixed or transient loads other than dead due to the occupancy of the building and its exposure to wind pressure.

SEC. 29. COURTS. A court is the unoccupied space between building lines and lot or street lines other than a yard open and unobstructed by appendages from the ground to the sky.

SEC. 30. PRIVATE DWELLINGS OR RESIDENCES shall be taken to mean and include every build-

ing which shall be intended or designed for or used as, the home or residence of not more than two separate and distinct families or households, and no part of said building shall be used for business, and shall not be connected together by party or division walls. Two of such buildings may be connected on each story when used for boarding purposes, provided the walls and stairs of each house shall be left unobstructed. And any such building hereafter erected shall not cover more than ninety per cent of the lot area.

SEC. 31. AN APARTMENT HOUSE shall be taken to mean and include every building which shall be intended or designed for, or used for the home or residence of three or more families or households, or by two or more families upon any floor so living. Any such building hereafter erected shall not cover more than ninety per cent. of the lot area.

SEC. 32. A HOTEL shall be taken to mean and include every building, or part thereof, designed or used for supplying food and shelter to residents or guests, and having a general public dining room or cafe, or both, and containing more than fifteen sleeping rooms above the first story.

SEC. 33. AN APARTMENT HOTEL shall be taken to mean and include every hotel in which the apartments are rented or are intended or designed to be rented in suites, and in which there are no kitchens, dining rooms of serving rooms within the apartments, but where a common dining room is provided for the use of the tenants. Whenever such hotel or apartment hotel hereafter erected shall be located on any other than a corner lot or plat, it shall not cover in the aggregate more than ninety per cent of the area of such lot or plot at and above the second story floor level, if not more than four stories in height, and one and one-half per cent. less for every story in height, commencing at and above the second story floor level, and on a corner lot, when covering an area of not more than 3,000 square feet, it shall not occupy more than ninety-five per cent. of the area of such lot at and above the second story level. In case such building is to occupy a number of lots, the Inspector of Buildings may allow the free air space proportioned as hereinafter stated, to be distributed in such manner as, in his opinion, will be equal as will secure light and ventilation.

SEC. 34. OFFICE BUILDING shall be taken to mean and include every building which shall be divided

into rooms above the first story and be intended and used for office purposes and no part of which shall be used for living purposes excepting only for the janitor and his family. Office building when not erected on a corner shall not cover more than ninety per cent. of lot area at, and above the second floor level.

SEC. 35. A FRAME BUILDING shall be taken to mean a building or structure of which the exterior walls or portion thereof shall be constructed of wood. Buildings sheathed with boards, partially or entirely covered with four inches of brick or stone shall be deemed to be frame buildings. Wood frames covered with metal, whether the frames are sheathed or not with boards shall be deemed to be frame structures.

SEC. 36. A COURT, i. e., an open unoccupied space other than a yard of an apartment house hereafter erected shall not be covered by a roof or skylight but every such court shall be at every point open from the ground to the sky unobstructed other than by fire escapes.

SEC. 37. OUTER COURTS. Where one side of an outer court, that is, a court extending to the street or yard, is situated on the lot line, the width of the said court, measured from the lot line to the opposite wall of the building, for apartment houses four stories and basement in height, shall be not less than four feet in any part; and for every story of increase above four stories, and basement in height of the said building, such width shall be increased six inches throughout the entire height of said court. Where an outer court is situated between wings or parts of the same building, or between different buildings on the same lot, the width of the said court, measured from wall to wall, for apartment house four stories and basement in height, shall be not less than eight feet in any part; and for every story of increase above four stories and basement in height of said building, such width shall be increased six inches throughout the entire height of the said court.

SEC. 38. INNER COURTS. Where one side of an inner court, that is, a court not extending to the street or yard, is situated on the lot line, the width of the said court measured from the lot line to the opposite wall of the building, for apartment houses four stories and basement in height, shall be not less than six feet in any part, and its horizontal dimensions shall be not less than twelve feet in any part; and for every story of increase in height of the said building above four stories and basement, such width shall be increased six inches throughout the entire

height of said court. And the other horizontal dimensions shall be increased one foot throughout the entire height of said court. And for every story of decrease in height of the said building below four stories and basement, such width may be decreased six inches throughout the entire height of the said court. And the other horizontal dimensions may be decreased one foot. Where an inner court is not situated upon the lot line, but is inclosed on all four sides, the least horizontal dimension of the said court for apartment houses four stories and basement in height shall be not less than twelve feet. And for every story of increase above four stories and basement in height of the said building, the said court shall be increased one foot in each horizontal dimension throughout the entire height of said court. No window, except windows of water closet apartment, bathrooms or halls shall open upon an offset or recess less than six feet in width.

SEC. 39. MATERIALS. All materials are to be of good quality for the purpose for which they are intended to be used, and conform to trade and manufacturers' standards. Each material must be free from imperfections whereby its strength or durability may be impaired and no material will be classed as good when its strength falls below ten per cent. of the best of its kind. For the purpose of this Code, the following materials shall be regarded the minimum standard of measure in comparison with other materials of their respective kinds.

SEC. 40. BRICK shall be merchantable standard size, 80 per cent. good, hard, well-burnt brick. When old brick are used in any building they shall be thoroughly cleaned before being used and shall be 90 per cent. whole and good hard well-burnt brick and thoroughly wet before using.

SEC. 41. STONE shall be best quality of sand stone, and other building stone equally as strong and durable may also be used.

SEC. 42. SAND. The sand shall be clean sharp grit sand, free from loam or dirt or other defects.

SEC. 43. LIME. Fresh burnt quick lime of commerce or a standard quality of Hydrated Lime.

SEC. 44. CEMENTS. Portland cement shall be held to mean such cement as shall consist of a mixture of argillaceous and calcareous materials, calcined together and subsequently ground to an impalpable powder, and thereafter to receive no addition of other substances ex-

cept a maximum of two per cent. of gypsum for the purpose of regulating the setting and when tested neat, after one day set in air, be capable of sustaining without rupture a tensile strain of at least one hundred and seventy-five pounds per square inch, and after one day in air and six days in water shall be capable of sustaining without rupture a tensile strain of at least three hundred pounds per square inch.

Cements other than Portland cement shall be considered to mean such cement as will, when tested neat, after one day set in air be capable of sustaining without rupture a tensile strain of at least sixty pounds per square inch, and after one day in air and six days in water, be capable of sustaining without rupture a tensile strain of at least one hundred and twenty pounds per square inch. Cements must be very finely ground and free from lumps.

SEC. 45. LIME MORTER. Slaked lime mortar shall be made of one part of lime paste and not more than three parts of sand.

SEC. 46. CEMENT AND LIME. Mortar mixed shall be made of one part of slaked lime paste, one part of cement and not more than three parts of sand to each, the quality of the respective parts to be in accord with the requirements before stated.

SEC. 47. CEMENT MORTAR shall be made of cement and sand in the proportion of one part of cement, and not more than three parts of sand, and shall be used immediately after being mixed. The cement and sand are to be measured and thoroughly mixed before adding water.

SEC. 48. CONCRETE FOR FOUNDATIONS shall be made of at least one part of Portland cement, three parts of sand and five parts of clean broken stone or slag, or its equal, of such size as to pass in any way through a two inch ring, or good clean gravel may be used in the same proportion as broken stone. The cement, sand and stone or gravel shall be measured and mixed, first sand and cement dry until its becomes a uniform color, then add the stone and then the water. All concrete shall be properly rammed into place before setting.

SEC. 49. QUALITY OF TIMBER. All timbers and wood beams used in any building shall be of good and sound material free from rot, large and loose knots, shakes, or any imperfection whereby the strength may be impaired and be of such size and dimensions as the purpose for which the building is intended requires.

SEC. 50., WROUGHT IRON. All wrought iron shall be uniform in character, fibrous, tough and ductile. It shall have an ultimate tensile resistance of not less than 48,000 pounds per square inch, and elastic limit of not less than 24,000 pounds per square inch, and an elongation of twenty per cent. in eight inches, when tested in small specimens.

STEEL. All structural steel shall have an ultimate tensile strength of from 54,000 to 64,000 pounds per square inch. Its elastic limit shall be not less than 32,000 pounds per square inch, and test specimens, ruptured in tension, must show a minimum elongation of not less than twenty per cent, in eight inches. Rivet steel shall have an ultimate strength of 50,000 to 58,000 pounds per square inch.

CAST STEEL shall be made of open hearth steel containing one-quarter to one-half per cent. of carbon, not over eight one hundredths of one per cent. of phosphorous, and shall be practically free from blow holes.

CAST IRON shall be of good foundry mixture, producing a clean tough gray iron. Sample bars of five feet long, one inch square, cast in sand molds, placed on supports of four feet, six inches apart shall bear a central load of 450 pounds before breaking. Castings shall be free from serious blow holes, cinder spots and cold shutes. Ultimate tensile strength shall be not less than 16,000 pounds per square inch when tested in small specimens.

SEC. 51. TEST OF MATERIALS. New structural material of whatever nature shall be subjected to such tests to determine its character and quality as the Inspector of Buildings shall direct. All tests shall be made under the supervision of the Inspector of Buildings or he may direct the architect or owner to file with him a certified copy of the results of tests, such as he may direct shall be made. The Inspector of Buildings shall have the authority to reject materials which are unsuitable and below the usual standard and may require test to be made at the expense of the owner or builder to determine the strength or durability of materials.

SEC. 52. STRENGTH OF MATERIALS. The dimensions of each piece or combination of materials required, shall be ascertained by computation, according to the rules prescribed by this Code.

SEC. 53. FACTORS OF SAFETY. Where the unit stress for any material is not prescribed in this Code the relation of allowable unit stress to ultimate strength

shall be: As one to four for metals, subjected to tension or transverse stress; as one to six for timber, and as one to ten for natural or artificial stones and brick or stone masonry; but whenever working stresses are prescribed in this Code, varying the factors of safety herein above given, the said working stresses shall be used.

SEC. 54. CONCRETE. The safe-bearing load to apply to concrete: When Portland cement is used shall be taken at sixteen tons per superficial foot; when cement, other than Portland, is used, eight tons per superficial foot.

SEC. 55. RUBBLE STONE WORK. The safe-bearing load to apply to rubble stone work shall be taken at: Six to ten tons per superficial feet when Portland cement is used, when cement, other than Portland is used, six to eight tons per superficial foot; when lime and Portland cement mortar mixed is used, six to eight tons per superficial foot; and when lime mortar is used, four tons per superficial foot.

SEC. 56. SAFE LOAD FOR MASONRY WORK. The safe-bearing load to apply to brick-works shall be taken at; Six to eight tons per superficial foot, when lime mortar is used; eight to eleven and one-half tons per superficial foot, when lime and cement mortar mixed is used; eleven and one-half to fifteen tons per superficial feet when Portland cement mortar is used.

SEC. 57. STRENGTH OF WOOD BEAMS. The safe carrying capacity of wood beams for uniformly distributed loads shall be determined by multiplying the area in square inches by its depth in inches and dividing this product by the span of the beam in feet. This result is to be multiplied by: 70 for hemlock, 90 for spruce and white pine, 120 for oak, and by 140 for yellow pine.

SEC. 58. SHORT TIMBERS. The safe carrying capacity for short span timber beam shall be determined by their resistance to shear in accordance with the unit stresses fixed by this Code.

SEC. 59. STRENGTH OF COLUMNS. In columns or compression members with flat ends of cast iron, steel, wrought iron, or wood, the stress per square shall not exceed when the length in inches divided by the least radius of gyration in inches equals for cast iron 10730—65X L/R, steel 13300—40 X L/R, wrought iron or soft steel 9900—30 X L/R, wood 1060—20 X L/D.

SEC. 60. COLUMNS AND COMPRESSION MEMBERS shall not be used having an unsupported length greater than twenty-five times their least horizontal dimensions for cast iron and wood, and forty for steel except as otherwise may be approved by the Inspector of Buildings.

SEC. 61. COLUMNS ECCENTRICALLY LOADED. Any column eccentrically loaded shall have the stresses by such eccentricity computed and the combined stresses resulting from such eccentricity at any part of the column, added to all other stresses at that part, shall in no case exceed the working stresses stated in this Code. The eccentric load of a column shall be considered to be equally distributed over the entire area of that column at the next point below at which the column is securely braced laterally in the direction of the eccentricity.

SEC. 62. WORKING STRESSES. The safe carrying capacity of the various materials of construction (except in case of columns) shall be determined by the following working stresses in pounds per square inch of sectional area:

COMPRESSION—Direct.

Rolled Steel.....	16,000
Cast Steel.....	16,000
Wrought Iron.....	12,000
Cast Iron (in short blocks).....	16,000
Steel Pins and Rivets (bearings).....	20,000
Wrought Iron Pins and Rivets (bearing).....	15,000
	Width Across
	Grain Grain
Oak.....	900 800
Yellow Pine.....	1,000 600
White Pine.....	800 400
Spruce.....	800 400
Locust.....	1,200 1,000
Hemlock.....	500 500
Concrete (Portland) cement (1), sand (2), stone (4).....	230
Concrete (Portland) cement (1), sand (2), stone (5).....	208
Concrete Rosendale or equal, cement (1), sand (2) Stone (4).....	125
Concrete Rosendale or equal, cement (1), saad (2) stone (5).....	111
Rubble-stone work in Portland cement mortar.....	140
Rubble-stone work in Rosendale cement mortar..	111
Rubble-stone work in Lime and cement mortar....	97
Rubble-stone work in Lime mortar	70

Brickwork in Portland cement mortar, cement (1), sand (3)-----	210
Brickwork in Rosendale, or equal, cement mortar, cement (1), sand (3)-----	208
Brickwork in lime and cement mortar, cement (1), lime (1), sand (6)-----	160
Brickwork in lime mortar, lime (1), sand (3)-----	111
Granites (according to test) 1,000 to-----	2,400
Gneiss stone-----	1,200
Limestone (according to test) 700 to-----	2,300
Marbles (according to test) 600 to-----	1,200
Sandstones (according to test) 400 to-----	1,600
Bluestone-----	2,000
Brick (hard-burned, flatwise)-----	300
Slate-----	1,000

SEC. 63. TENSION (Direct)

Roller Steel-----	16,000
Cast Steel-----	16,000
Wrought Iron-----	12,000
Cast Iron-----	3,000
Yellow Pine-----	1,200
White Pine-----	800
Spruce-----	800
Oak-----	1,000
Hemlock-----	600

SEC. 64. SHEAR

Steel Webb Plates-----	9,000
Steel Shop Rivets and Pins-----	10,000
Steel Field Rivets-----	8,000
Steel Field Bolts-----	7,000
Wrought Iron Webb Plates-----	6,000
Wrought Iron Shop Rivets and Pins-----	7,500
Wrought Iron Field Rivets-----	6,000
Wrought Iron Field Bolts-----	5,500
Cast Iron-----	3,000

	With Fibre	Across Fibre
Yellow Pine-----	120	500
White Pine-----	40	250
Spruce-----	50	320
Oak-----	100	600
Locust-----	100	720
Hemlock-----	40	275
Chestnut-----	40	150

SEC. 65. SAFE EXTREME FIBRE STRESS—

Bending

Rolled Steel Beams-----	16,000
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Rolled Steel Pins, Rivets and Belts.....	20,000
Riveted Steel Beams (Net flange section).....	14,000
Rolled Wrought Iron Beams.....	12,000
Rolled Wrought Iron Pins, Rivets and Belts.....	15,000
Riveted Wrought Iron Beams (net flange section).....	12,000
Cast Iron compression side.....	16,000
Cast Iron tension side.....	3,000
Yellow Pine.....	1,260
White Pine.....	800
Spruce.....	800
Oak.....	1,000
Locust.....	1,200
Hemlock.....	600
Chestnut.....	800
Granite.....	180
Gneiss stone.....	150
Limestone.....	150
Slate.....	400
Marble.....	120
Sandstone.....	100
Bluestone.....	300
Concrete (Portland) Cement (1), sand (2), stone (4).....	30
Concrete (Portland) Cement (1), sand (3), stone (5).....	10
Concrete (Rosendale or equal) Cement (1), sand (2), stone (4).....	14
Concrete (Rosendale, or equal) Cement (1), sand (2), Stone (5).....	8
Brick (hard burned).....	50
Brick (in cement).....	30

SEC. 66. WEIGHT OF MATERIALS. For the purpose of computing the weight upon floors, walls, piers, columns, and other supports, the following shall be taken as the weight of materials:

Lumber, per foot board measure, dry.....	3	lbs.
Lumber, per foot board measure, green.....	6	"
Loam, clay, sand, green plaster, etc., per cubic ft.....	120	"
Brick work, hard, per cubic foot.....	120	"
Terra cotta in mortar per cubic foot.....	100	"
Stone work, per cubic foot.....	160	"
Stone Concrete, per cubic foot.....	150	"
Granite and marble, per cubic foot.....	180	"
Slating, per square 100 foot.....	600	"
Lath and plaster, one side per sq. foot.....	10	"
4-ply felt and gravel roof.....	15	"

Wrought Iron, one cubic foot.....	480	"
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One square foot, one inch thick.....	40	“
One square inch and foot long.....	3½	“
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One cubic foot of steel.....	489.6	“
One square foot of steel, one inch thick.....	40.8	“
One square inch, one foot long, steel.....	3.4	“
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Cast Iron, one cubic foot.....	450	“
Cast Iron, one square foot, one inch thick.....	37.5	“
Cast Iron, one square inch, one foot long.....	3½	“

SEC. 67. LIVE AND DEAD LOADS. The dead loads in all buildings shall consist of the actual weight of walls, floors, roofs, partitions, and all permanent construction. The live or variable loads shall consist of all loads other than dead loads.

Every floor shall be of sufficient strength to bear safely the weight to be imposed thereon in addition to the weight of the materials of which the floor is composed. If to be used as dwelling house, apartment house, apartment hotel, hotel or lodging house, each floor shall be of sufficient strength in all its parts to bear safely upon every superficial foot of its surface not less than sixty pounds.

If to be used for office purposes, not less than seventy-five pounds upon every superficial foot above the first floor, and for the latter floor one hundred and fifty pounds.

If to be used as a school or place of instruction, not less than seventy-five pounds upon every superficial foot. If to be used for stable and carriage house purpose, not less than seventy-five pounds upon every superficial foot.

If to be used as a place of public assembly, not less than ninety pounds upon every superficial foot.

If to be used for ordinary stores, light manufacturing and light storage, not less than one hundred and twenty pounds upon every superficial foot.

If to be used as store where heavy materials are kept or stored, warehouse, factory, or for any other manufacturing or commercial purpose, not less than one hundred and fifty pounds upon every superficial foot.

The strength of factory or other floors intended to carry running machinery shall be increased above the minimum given in this section in proportion to the degree of vibratory impulse liable to be transmitted to the floor and in no case less than twenty per cent. or more as may be required by the Inspector of Buildings.

The roofs of all buildings having a pitch of less than twenty degrees shall be proportioned to carry safely thirty pounds upon every superficial foot of their surface,

in addition to the weight of materials composing the same. If the pitch be more than twenty degrees the live load shall be assumed at thirty pounds upon every superficial foot measured on a horizontal plan.

For sidewalks between the curb and area lines the live load shall be taken at two hundred pounds upon every superficial foot.

SEC. 68. VERTICAL SUPPORTS. Every Column post or other vertical support shall be of sufficient strength to bear safely the weight of the portion of each and every floor depending upon it for support, in addition to the weight required as before stated, to be supported safely upon said portion of said floors.

SEC. 69. TEMPORARY SUPPORTS. Every temporary support placed under any structure, wall, girder or beam, during the erection, finishing, alteration, or repairing of any building or structure or any part thereof, shall be of sufficient strength to safely carry the load to be placed thereon.

SEC. 70. MATERIAL ON FLOORS IN CONSTRUCTION. During the construction or alteration of any building or structure, no material entering into such construction or alteration shall be placed on any floor of any greater weight than the live load that each such floor is intended to safely sustain when the building or structure is completed.

SEC. 71. LOADS ON FLOORS TO BE DISTRIBUTED. The weight placed on any of the floors of any building shall be safely distributed thereon. The inspector of Buildings may require the owner or occupant of any building, or of any portion thereof, to redistribute the load on any floor, or to lighten such load where he deems it to be necessary.

SEC. 72. STRENGTH OF FLOORS TO BE CALCULATED. To prevent overloading in all warehouses, storehouses, factories, work shops and stores where heavy materials are kept or stored, or machinery introduced the weight that each floor will safely sustain on each square foot thereof shall be estimated by the Inspector of Buildings, or by some competent person and approved by the Inspector of Buildings, and the estimate thus arrived at shall be posted in a conspicuous place upon each floor of said building. No person shall place or cause or permit to be placed on any floor of any building any greater load than the safe load thereof as estimated as herein provided.

SEC. 73. WIND PRESSURE. In all buildings or structures whose height exceed one and one-half ($1\frac{1}{2}$) times the average width of their base, irrespective of their location, allowance shall be made for wind pressure, which for all free standing structures shall not be figured at less than thirty (30) pounds per square foot of surface exposed from the grade to the top of same, including roof, in any direction, and for buildings in built-up districts the wind pressure shall not be figured at less than twenty-five (25) pounds per square foot at the tenth story and two and one half ($2\frac{1}{2}$) pounds less on each succeeding lower story, and two and one-half ($2\frac{1}{2}$) pounds additional on each succeeding upper story, until a maximum of thirty five (35) pounds is reached, which pressure shall be maintained to the top.

Every panel in a curtain wall shall be proportional to resist a wind pressure of thirty (30) pounds per square foot. In no case shall the overturning moment due to wind pressure exceed seventy-five per cent. of the moment of the stability of the structure.

In all structures exposed to wind, if the resisting moments of the "dead load" and connections are not sufficient to resist the moment of distortion due to wind pressure taken in any direction on any part of the structure, additional bracing shall be introduced sufficient to make up the difference in the moments. The precautions against the effect of wind pressure may take the form of any one or more or all of the following factors of resistance to the wind pressure.

First. By cross walls or buttresses.

Second. Dead weight of structure, especially in its lower parts.

Third. Diagonal braces.

Fourth. Rigidity of connections between vertical and horizontal members by gussets, knees or portals.

Fifth. By constructing iron or steel pillars in such manner as to pass through two stories with joints breaking in alternate stories.

All buildings lacking in initial stability, and such other structures subjected to the lifting force of the wind, shall be anchored to their foundations, which shall be of sufficient weight to insure the stability of the structure.

SEC. 74. HEIGHT OF STORIES. The height of stories for all given thickness of walls shall not exceed:

Basement	12 feet in the clear.
First Story	18 feet in the clear.
Second Story	14 feet in the clear.
Third Story	12 feet in the clear.

Fourth and upper stories-----11 feet in the clear. And if any story exceeds the foregoing height, the walls of any such story and all walls below that story shall be increased four inches in thickness. A Mezzanine or gallery story shall not be less than seven feet in the clear, and the area of such Mezzanine floor or gallery shall not exceed one-third of the floor area of the story in which it is introduced. The height of a story shall be the perpendicular distance from the top of the finished floor in one story to the underside of the finished ceiling in the same story.

SEC. 75. LIMITING THE HEIGHT OF BUILDING. No non-fireproof building or structure hereafter erected shall exceed sixty feet in height, nor the heights specified for non-fireproof buildings of the several respective classes mentioned in this Code. No buildings or structures hereafter erected to be used above the ground floor as factories, warehouses or stores for the storage or sale of merchandise shall exceed seventy feet in height.

Such height shall be the perpendicular distance measured in a straight line, taken at the center of the facade of the building, from the curb level to the highest point of the roof beams, not including in such measurement of height cornices, which do not exceed more than five feet above the highest point of the roof beams nor inclosures for the machinery of elevators which do not exceed fifteen feet in height or inclosures for tanks which do not exceed twenty feet in height above the roof beams, and do not exceed in united areas ten per centum of the area of the roof.

SEC. 75½. MACHINERY. It shall be unlawful for any person, firm or corporation in the City of Birmingham to locate, install or cause to be located or installed, in any building above the first floor level any machinery, printing presses, or other heavy machinery which would produce an active live load and weighing more than five (5) tons unless the said machinery be located or installed upon fireproof construction extending from the foundation of the building.

SEC. 76. FLOOR AREAS IN BUILDINGS. In all new non-fireproof stores, warehouses and factories, no single floor area, between brick fire walls of a thickness corresponding to the main bearing walls, shall exceed the following:

When located fronting on one street only, may cover an area of not more than five thousand square feet.

Or, when extending from street to street may cover an area of not more than seven thousand square feet.

Or, if a corner building fronting on two streets, it may cover not more than seven thousand square feet.

Or, when such a building fronts on three streets, it may cover an area of not more than seven thousand five hundred square feet between brick fire walls.

In all stores, warehouses and factories, not exceeding sixty feet in height, which may be built fireproof, the areas between brick fire walls of a thickness corresponding to the main bearing walls, it may be one hundred per cent. greater than the areas hereinbefore stated in this section for non-fire proof building, that is to say: When located fronting on one street only it may cover an area of not more than ten thousand square feet.

Or, when such building extends from street to street it may cover an area of not more than twelve thousand square feet.

Or, if a corner building fronting on two streets it may cover an area of not more than twelve thousand square feet.

Or, when such a building fronts on three streets it may cover an area of not more than fifteen thousand square feet between brick fire walls.

But in case any such fireproof building exceeds the height of sixty feet, the areas between brick walls of a thickness corresponding to the main bearing walls may be the same, but no greater than the areas hereinbefore stated in this section for non-fire proof construction.

Provided, however, in case the foregoing described buildings are completely equipped with a system of automatic sprinklers in a manner approved by the S. E. U. A. the areas between the brick partition walls may be increased as follows:

For non-fireproof constructed buildings, the respective areas hereinbefore stated may be increased fifty per centum.

For the fireproof constructed buildings not exceeding sixty feet in height, the respective areas hereinbefore stated may be increased thirty-three and one-third per centum, and,

For the fireproof constructed buildings not exceeding sixty feet in height, the respective areas hereinbefore stated may be increased thirty-three and one-third per centum, and,

For fireproof constructed buildings intended or designed for occupancy other than stores, warehouses and factories, and when not exceeding one hundred and twenty-five feet in height, the areas between brick fire walls of a

thickness corresponding to the main bearing walls may be the same, but no greater than the areas hereinbefore stated in this Section for fireproof buildings not exceeding sixty feet in height with automatic sprinkler protection, that is to say—when located fronting on one street only, may cover an area of not more than thirteen thousand three hundred and thirty-three square feet;

Or, when such a building extends from street to street the area may be not more than sixteen thousand square feet;

Or, if a corner building fronting on two streets, it may cover an area of not more than sixteen thousand square feet;

Or, when such a building fronts on three streets, it may cover an area between said brick fire walls of not more than twenty thousand square feet;

Provided, however, in case such buildings are completely equipped with a system of automatic sprinklers as hereinbefore described, the respective areas between the brick fire walls may be increased fifty per centum.

The automatic sprinkler system, including the water supply in connection therewith hereby required in this Section shall be installed and kept in perfect working order by the owner, lessee or occupant of the premises.

SEC. 77. PRESSURE UNDER FOOTINGS OF FOUNDATIONS. The loads exerting pressure under footings of foundations in buildings more than three stories in height are to be computed as follows:

For warehouses and factories they are to be the full dead load and the full live load established by this Code.

In stores and buildings for light manufacturing purposes they are to be the full dead load and seventy-five per cent. of the live load established by this Code.

In churches, school houses and places of public amusement or assembly, they are to be the full dead load and seventy-five per cent. of the live load established by this Code.

In office, hotels, apartment hotels, dwellings, apartment houses and stables they are to be the full dead load and sixty per cent of the live load established by this Code.

Footings shall be so designed that the loads will be as nearly uniform as possible, and not in excess of the safe bearing capacity of the soil, as established by this Code.

SEC. 78. BEARING CAPACITY OF SOILS. When no tests of the sustaining power of the soil is made, dif-

ferent soils, excluding mud, at the bottom of the footings shall be deemed to safely sustain the following loads to the superficial foot namely:

Soft clay, one ton per square foot.

Ordinary clay and sand together, in layers, wet and springy, two tons per square foot.

Loam clay or fine sand, firm and dry, two to three tons per square foot.

Very firm, coarse sand, stiff gravel or hard clay three to four tons per square foot, or as otherwise determined by the Inspector of buildings. Where a test is made of the sustaining power of the soil, the Inspector of Buildings shall be notified so that he may be present either in person or by representative. The record of the test shall be filed in the Department of Buildings.

When a doubt arises as to the safe sustaining power of the earth upon which a building is to be erected, the Department of Buildings may order borings to be made, or direct to be tested the sustaining power of the soil, by and at the expense of the owner of the proposed building.

SEC. 79. LOADS ON FOUNDATIONS. When foundations are carried down through earth by piers of stone, brick or concrete in caissons, the loads on same shall not be more than:

Fifteen tons per square foot when carried down to solid rock four feet thick.

Eight to ten tons to the square foot when carried down to firm gravel or hard clay.

Eight tons to the square foot in open caissons or sheath pile trenches when carried down to solid rock.

SEC. 80. EXCAVATIONS. All excavations for buildings shall be properly guarded and protected so as to prevent the same from becoming dangerous to life or limb,

And shall be sheath-piled by the person or persons causing the excavations to be made when necessary to prevent the adjoining earth from caving in.

SEC. 81. ADJOINING WALLS. In case any adjoining party wall is intended to be used by the person or persons causing the excavation to be made and such party wall is in good condition and sufficient for the uses of the adjoining building, then and in such case the person or persons causing the excavations to be made shall, at his or their own expense preserve such party wall from injury and support the same by proper foundations, so that said party wall shall be and remain practically as

safe as before the excavation was commenced. If the person or persons whose duty it shall be to protect or preserve any wall or walls, structure or structures, from injury shall neglect or fail to do so after having had a notice of twenty-four hours from the Department of Buildings, then the Inspector of Buildings may enter upon the premises and employ such labor, and furnish such materials, and take such steps as, in his judgment, may be necessary, at the expense of the person or persons whose duty it is to keep the same safe and secure, or to prevent the same from becoming unsafe or dangerous.

Any party doing the said work or any part thereof, under and by direction of the said Department of Buildings, may bring and maintain an action against the person or persons last herein referred to, to recover the value of the work done and materials furnished, in and about the said premises, in the same manner as if he had been employed to do the said work by the said person or persons.

SEC. 82. RETAINING WALLS. When an excavation is made on any lot, the person or persons causing such excavation to be made, shall build on the adjoining lot at his or their own cost and expense, a retaining wall to support the adjoining earth, if accorded the necessary license to enter upon the said adjoining lot, and not otherwise, and such retaining wall shall be carried to the height of the adjoining earth, and be properly protected by coping. If the necessary license is not accorded to the person or persons making such excavation, then it shall be the duty of the owner or owners refusing to grant such license to build the retaining wall on his or their own property at his or their own expense without recourse to the person or persons making the excavation on the premises adjoining thereto.

The thickness of a retaining wall at its base shall be in no case less than one-fourth of its height or less than one foot at the top or of a design of equivalent strength.

SEC. 83. FOUNDATIONS. Every building except buildings erected upon solid rock shall have foundations of brick, stone, iron, steel or concrete laid below the surface of the earth at least twelve inches wider than the wall above, on solid level ground or level surface of rock, or upon piles or ranging timbers when solid rock or earth is not found.

SEC. 84. FOUNDATION WALLS. Foundation walls shall be constructed to include all walls and piers built below the curb level, or nearest tier of beams to the

curb, or to the average level of the ground adjoining the walls, to serve as supports for walls, piers, columns, girders, posts or beams.

Foundation walls shall be built of stone, brick, Portland cement, concrete, reinforced concrete, iron or steel.

If built of rubble stone, they shall be at least eight inches thicker than the wall next above them to a depth of twelve feet below the curb level, and for every additional ten foot, or part thereof, deeper, they shall be increased four inches in thickness.

If built of brick or concrete they shall be at least four inches thicker than the wall next above them to a depth of twelve feet below.

SEC. 85. INVERTED ARCHES. If, in place of a continued foundation wall, isolated piers are to be built to support the superstructure, where the nature of the ground and the character of the building in the opinion of the Inspector of Buildings make it necessary, inverted arches resting on a proper bed of concrete, both designed to transmit with safety the superimposed loads, shall be turned between the piers.

The thrust of the outer piers shall be taken up by suitable wrought iron or steel rods and plates.

SEC. 86. FOUNDATIONS INSPECTED. It shall be the duty of any person, firm or corporation, excavating for a building, to have the excavations or trenches inspected and approved before the foundations are laid; and no foundations, footings, or portion thereof shall be filled in until approved by the Inspector of Buildings.

SEC. 87. GRILLAGE IN FOUNDATIONS. Grillage beams of wrought iron or steel resting on a proper concrete bed may be used. Such beams shall be provided with separators and bolts inclosed and filled solid between with concrete, and of such sizes and so arranged as to transmit with safety the superimposed loads.

SEC. 88. METAL IN FOUNDATIONS. Where metal is incorporated in or forms a part of a foundation it shall be thoroughly protected from rust by paint or asphaltum, and be thoroughly inbedded in concrete, or by such materials and in such manner as may be approved by the Inspector of Buildings.

SEC. 89. PILES. Piles of wood intended to sustain a wall, pier or post, shall be spaced not more than thirty-six inches nor less than twenty inches on centers, and they shall be driven to a solid bearing if practicable

to do so, and the number of such piles shall be sufficient to support the superstructure proposed. No wood pile shall be used of less dimensions than five inches at the small end and ten inches at the butt for short piles, or piles twenty feet or less in length, and twelve inches at the butt for long piles, or piles more than twenty feet in length. No wood pile shall be weighted with a load exceeding forty thousand pounds. When a wood pile is not driven to refusal, its safe sustaining power in tons shall be determined by the following formals:

Twice the weight of the hammer in tons multiplied by the height of the fall in feet divided by the least penetration of pile under the last blow in inches plus one. The Inspector of Buildings shall be notified of the time when such test piles of wood will be driven that he may be present, either in person or by representative. The top of all piles shall be cut off below the lowest water line. When required, concrete shall be rammed down in the interspaces between the heads of the piles to a depth and thickness of not less than twelve inches, and for one foot in width outside of the piles.

SEC. 90. CONCRETE PILES. Piles of concrete or reinforced concrete piles may be made of concrete, either reinforced or plain. Plain concrete piles must be molded in place by methods which are reasonably certain to secure perfect, full-sized piles; reinforced concrete piles, if properly designed to resist the shock of driving, and if driven with a cushion to lessen the shock, or if put down by a water jet, may be moulded and allowed to harden, and then driven or jetted into place. In case concrete piles are used, whether reinforced or otherwise, their bearing power shall be determined by putting in one or more test piles and loading them, after the concrete is sufficiently hard. The full working load in the structure shall not be more than one-half of the load under which the pile begins to settle. In no case, however, shall the load on a concrete pile exceed twenty-five tons per square foot of cross section of concrete, plus 5,000 pounds per square inch of any longitudinal steel reinforcement.

Concrete piles shall be always made of mixture not leaner than one part cement, two parts sand and five parts gravel or broken stone. The gravel or stone must all be capable of passing a three-fourth inch ring, and the concrete must be mixed by machinery, a batch at a time, and the concrete must be turned over completely at least

twenty-five times. One complete revolution of the machine, if not too rapid, will count as one turning of the concrete.

SEC. 91. RANGING AND CAPPING TIMBERS.

Where ranging and capping timbers are laid on piles for foundations, they shall be of hard wood not less than six inches thick and properly joined together, and their tops laid below the lowest water line.

SEC. 92. BASE COURSE. The footings or base courses of walls, piers or columns, shall be of stone or concrete or both, or of concrete and stepped up brick work of sufficient thickness and area to safely bear the weight to be imposed thereon. And at least eighteen inches below the surface of the ground.

If the footings or base course be of concrete the concrete shall be not less than twelve inches thick. If of stone the stones shall be not less than two by three feet, and at least eight inches in thickness for walls; and not less than ten inches in thickness if under piers, columns or posts.

The footings or base course, whether formed of concrete, brick or stone shall be at least twelve inches wider than the bottom width of walls, and at least twelve inches wider than the bottom width of said piers, columns or posts. If the superimposed load is such as to cause undue transverse strain on a footing projecting twelve inches, the thickness of such footing is to be increased so as to carry the load with safety.

For small structure, and for small piers sustaining light loads, the Inspector of Buildings may, in his discretion, allow a reduction in the thickness and projection for footing or base course herein specified. All base stones shall be well bedded and laid crosswise and level edge to edge.

SEC. 93. STEPPED UP FOOTINGS. If stepped-up footings of brick are used in place of stone, above the concrete, the off-sets, if laid in single courses, shall each not exceed two and one-half inches if laid in double courses, then each shall not exceed three inches, off-setting the first course of brick work, back one-half of the thickness of the concrete base, so as to properly distribute the load to be imposed thereon.

SEC. 94. MATERIALS OF WALLS. The walls of all buildings, other than frame or wood buildings, shall be constructed of stone, brick, Portland cement, concrete, iron or steel, or if approved by the Inspector of Buildings,

other hard, incombustible material, and the several component parts of such buildings shall be as herein provided. All buildings shall be inclosed on all sides with independent or party walls.

SEC. 95. BRICK AND MASONRY WORK. The wall and piers of all buildings shall be properly and solidly bonded together with close joints filled with mortar. They shall be built up the full thickness to the top of the beams above. All brick laid in non-freezing weather and especially old brick shall be wet before being laid. Walls or piers, or parts of walls and piers, shall not be built in freezing weather, and if frozen shall not be built upon, but shall be removed and rebuilt. Freezing weather shall be taken to mean a temperature of thirty-two (32) degrees Fahrenheit or lower.

SEC. 96. HEADING COURSES IN BRICK WALLS. In all brick walls every sixth course shall be a heading course, except where walls are faced with brick in running bond, in which latter case, every fifth course shall be bonded into the backing by cutting the course of the face brick and putting in diagonal headers behind the same or by splitting the face brick in half and backing the same with a continuous row of headers. Where face brick is used of a different thickness from the brick used for the backing the courses of the exterior and interior brick work shall be brought to a level bed at intervals of not more than ten courses in height of the face brick, and the face brick shall be properly tied to the backing by a heading course of the face brick, and intermediate between the headers with metal ties. All bearing walls faced with brick laid in running bond shall be four inches thicker than the walls required to be under any other section of this Code. If brick walls are laid in Flemish or English bond, all headers must be full headers if possible. Where this is not possible, the headers of every sixth course must be full headers, and in this case, the thickness of the wall must be four inches, greater than it would be otherwise, under the requirements of this Code.

SEC. 97. BEARING WALLS DEFINED. Bearing walls shall be taken to mean those walls on which the beams, girders or trusses rest.

SEC. 98. BEARING WALLS WITH OPENINGS. If any horizontal sections through any part of any bearing wall in any building shows more than thirty per centum area of flues or openings, the said wall shall be increased

four inches in thickness for every fifteen per centum, or fraction thereof, of flues or opening area in excess of 30 per centum.

SEC. 99. MORTAR FOR WALLS AND ASHLAR.

All foundation and basement walls, to grade isolated piers, parapet walls and chimneys above attic floor shall be laid in cement mortar, but this shall not prohibit the use in cold weather of a small proportion of lime to prevent the mortar from freezing.

All other walls built of brick or stone shall be laid in lime, cement, or lime and cement mortar mixed.

The backing up of all stone ashlar shall be laid up with cement mortar, or cement and lime mortar mixed.

SEC. 100. ASHLAR. Stone used for facing any building, and known as ashlar, shall not be less than four inches thick.

Stone ashlar shall be anchored to the backing and the backing shall be of such thickness as to make the walls independent of the ashlar, conform as to the thickness with the requirements of this Code. Unless the ashlar be at least eight inches thick and bonded into the backing then it may be counted as part of the thickness of the wall.

SEC. 101. WALLS FOR DWELLING HOUSE CLASS. The expression "walls for dwelling house class" shall be taken to mean and include walls for the following buildings:

Apartment houses,	Hospitals,
Apartment hotels,	Hotels,
Asylums,	Laboratories,
Club houses,	Lodging houses,
Convents	Parish buildings
Domitories,	Schools,
Dwellings,	Studies.
Tenements,	

For buildings hereafter erected in the dwelling house class, the minimum thickness of all independent surroundings and dividing walls in the same, carrying the loads of the floors and roofs, shall be made in accordance with the following: The top story twelve inches thick, or the three top stories twelve inches thick and an increase of four inches for every three stories or part of three stories downward to the first story which shall be four inches thicker than the story above the same, and an increase of four inches for every twelve feet from the first story downward, if only two stories high not over fifteen feet between joists, each story may be twelve inches thick, when the walls are used

for party or double bearing walls, in non-fireproof buildings the ends of the beams shall rest on corbeled ledges or joist hangers. If the beams do not rest on corbeled ledges or joist hangers, the twelve inch section of the walls shall be increased to not less than sixteen inches in thickness.

When used for bearing party walls in fireproof buildings, no portion of the walls shall be less than sixteen inches in the thickness.

SEC. 102. WALLS FOR WAREHOUSE CLASS.

The expression "walls for warehouse class" shall be taken to mean and include walls for the following buildings:

Armories,	Museums,
Barns,	Observatories,
Breweries,	Office buildings,
Carriage houses	Police stations,
Churches,	Printing houses,
Cooperage shops,	Public Assembly buildings,
Court houses,	Pumping stations,
Factories,	Railroad buildings,
Foundries,	Refrigerating houses,
Garages,	Slaughter houses,
Jails,	Stables,
Libraries,	Stores,
Light and power houses,	Sugar Refineries,
Machine shops,	Theaters,
Markets,	Warehouses,
Mills,	Wheelwright shops.

For buildings hereafter erected in the warehouse class, the minimum thickness of all independent surroundings and dividing walls in the same, carrying the loads of floors and roofs shall, be made in accordance with the following: The top story twelve inches thick and an increase of four inches for every two stories or part of two stories downward to the basement which shall be four inches thicker than the first story and an increase of four inches for every twelve feet downward below basement. Non-bearing walls, same as for dwelling house class if approved by the Inspector of Buildings.

When used for party wall no portion of the wall shall be less than sixteen inches thick.

SEC. 103. CLEAR SPAN THICKNESS. If there is to be a clear span of over twenty-five feet between the bearing walls in any building such walls shall be four inches thicker than in this section specified, for every twelve and one-half feet, or fraction thereof, that said walls are more

than twenty-five feet apart, or shall have instead of the increased thickness such piers or buttresses as, in the judgment of the Inspector of Buildings, may be necessary.

SEC. 104. WALL FOR PUBLIC BUILDINGS.

The walls of buildings of a public character shall be not less than in this code specified for warehouses with such piers or such buttresses, or supplemental columns of iron or steel properly insulated as provided in the judgment of the Inspector of Buildings may be necessary to make a safe and substantial building.

SEC. 105. WALLS WITH TRUSSED ROOF. The outside brick or stone walls of rooms, having truss roofs or ceilings, such as churches, public halls, theaters, dining rooms or the like, if more than fifteen or less than twenty-five feet high, shall average at least sixteen inches in thickness; if over twenty-five feet high at least twenty inches in thickness; if over forty feet high at least twenty-four inches in thickness. An increase of four inches in thickness shall be made in all cases where the walls are over one hundred and five feet long, unless there are cross walls or buttresses of equal height.

SEC. 106. ONE AND TWO STORY PRIVATE RESIDENCES. To cover not over two thousand four hundred square feet of lot area and to be not less than five feet from any party property line. The foundation to be not less than eighteen inches above the grade, the first story not over eleven feet in the clear, the second story not over ten feet in the clear. May be built of a uniform brick, concrete or hollow tile, foundation walls twelve inches thick, first and second story nine inches thick to be laid in cement mortar, the bearing walls of the nine-inch section to be corbled to carry the joist or joist hung in iron stirrups, or to the approval of Inspector of Buildings. No wood work will be allowed in this construction on the outside of the building except window and door frame, porch, floors and steps, inside the fire limit.

SEC. 107. BUTTRESSES. If solid buttresses of brick or stone are employed with a sectional area of three hundred or more square inches, in addition to thickness of walls of brick or stone, placed not over eighteen feet centers, which extend to or nearly to top of walls, the wall constructed with such buttress may be four inches less in thickness than required by this Code, but no wall shall be less than twelve inches thick.

SEC. 108. INCREASED THICKNESS of walls for buildings more than one hundred and forty feet in depth. All buildings, not excepting dwellings, that are over one hundred and forty feet in depth, without a crosswall or proper piers or buttresses, shall have the side or bearing walls increased in thickness four inches more than is specified in the respective Sections of the Code for the thickness of walls for every one hundred and forty feet or part thereof, that the said buildings are over one hundred and forty feet in depth.

SEC. 109. REDUCED THICKNESS FOR INTERIOR WALLS. In case the walls of any building are less than twenty-five feet apart, and less than forty feet in depth, or there are crosswalls which intersect the walls, not more than forty feet distance, or piers or buttresses built into the walls, the interior walls may be reduced in thickness in just proportion to the number of crosswalls, piers or buttresses, and their nearness to each other; provided, however, that this clause shall not apply to walls below fifty-five feet in height, and that no such walls shall be less than twelve inches thick at the top, and gradually increased in thickness by sett-offs to the bottom. The Inspector of Buildings is hereby authorized and empowered to decide (except where herein otherwise provided for), how much the walls herein mentioned may be permitted to be reduced in thickness without endangering the strength and safety of the building, according to the peculiar circumstances of each case.

SEC. 110. DIVISION WALLS. Whenever two or more dwellings or apartment houses are built in a row, the division walls separating the different houses must be built of incombustible material to the underside of the roof, and if said houses are over one story in height, the division wall shall be fireproof and conform with all other requirements of this Code, as to thickness, length and height, and must extend two feet above the roof and be properly coped.

SEC. 111. CURTAIN. Walls of brick built in between iron, steel or reinforced concrete columns and supported wholly or in part on iron, steel or reinforced concrete girders when of brick shall be not less than twelve inches thick except in cases of interior panels not exceeding twenty feet in width when walls eight inches thick may be allowed.

SEC. 112. PARTY WALLS. Any party wall now existing that shall have been built conformable to the re-

quirements of this Code, regulating the construction of such walls, if sound and in good condition, may be used in the construction of any adjoining building. Provided, however, that no additional height shall be given to the walls, unless the thickness of such additional wall and thickness of the old wall, in each story, shall at least equal the thickness required for party walls. This section shall apply in all cases where it is desired to add additional height to any business building. In case of outside walls of any building being built against the wall of any old building, the new wall shall be of the same thickness as required for outside walls in such buildings.

SEC. 113. LINING EXISTING WALLS. In case it is desired to increase the height of existing party or independent walls, which are less in thickness than required under this Code, the same shall be done by a lining of brickwork to form a combined thickness with the old wall of not less than four inches more than the thickness required for a new wall corresponding with the total height of the wall when so increased in height. If the wall is as perfect as a new wall, the thickness may be the same as a new wall. The said linings shall be supported on proper foundations, and carried up to such height as the Inspector of Buildings may require. No wall shall be lined which is less than twelve inches thick. Linings shall be laid up in Portland cement mortar and thoroughly bonded or anchored to the old brick walls with suitable iron anchors, properly fastened or driven into the old walls in rows alternating vertically and horizontally with each other, the old walls being first cleaned of plaster or other coatings and well wet where any lining is to be built against the same. No rubble stone wall shall be lined except after inspection and approval by the Inspector of Buildings.

SEC. 114. WALLS TIED, ANCHORED AND BRACED. In no case shall any wall of any building be carried up more than one story in advance of any other wall, except by permission of the Inspector of Buildings. The front, rear, side and party walls shall be properly bonded together, or anchored to each other every six feet in their height by wrought iron tie anchors, not less than one and one-half inches by three-eighths of an inch in size, and not less than twenty-four inches in length. The side anchors shall be built into the side or party walls not less than sixteen inches, and into the front and rear walls, so as to secure the front and rear walls to the side or party walls, when not built and bonded together.

All exterior piers shall be anchored to the beams or girders on the level of each tier.

SEC. 115. WALLS TO BE BRACED. The walls and beams of every building, during the erection or alteration thereof, shall be strongly braced from the beams of each story, and when required, shall also be braced from the outside, until the building is inclosed. The roof tier of wood beams shall be safely anchored with plank or joist to the beams of the story below until the building is inclosed.

SEC. 116. PIERS. All piers shall be built of best quality of stone concrete or of good, well burnt hard brick, laid in cement and sand mortar and well wet when laid in warm, dry weather. Brick or stone piers under lintels, girders or columns of brick or stone buildings, over one story high shall have a cap of iron, at least one and one-half inches thick, the full size of pier. Brick or stone piers and buttresses shall be bonded with through courses, level and bedded each course.

SEC. 117. CHASES FOR PIPES. No chase for water or other pipes shall be made in any pier, and in no wall more than one third of its thickness. No chase in any nine inch wall. The chases around said pipe or pipes shall be filled up with solid masonry for the space of one foot at the top and bottom of each story. No horizontal recess or chase in any wall shall be made exceeding four feet in length without permission of the Inspector of Buildings.

SEC. 118. FURRED WALLS. In all walls furred with wood the brickwork between the ends of wood beams shall project the thickness of the furring beyond the inner face of the wall for the full depth of the beams.

SEC. 119. LIGHT AND VENT SHAFTS. In every building hereafter erected or altered, all the walls or partitions forming interior light or vent shafts, shall be built of brick or of such other fireproof materials as may be approved by the Inspector of Buildings. The walls of all light or vent shafts, whether exterior or interior, hereafter erected, shall be carried up not less than three feet above the level of the roof. And the brick walls shall be coped as other parapet walls. When the shaft is covered by a ventilating skylight of metal and wired glass the walls need not be carried more than two feet above the roof. When metal louvres are used for ventilating purposes, the louvres or slats shall be riveted to the metal frame.

SEC. 120. TIMBER IN WALLS PROHIBITED. No timber shall be used in any wall of any building where stone, brick, cement, concrete or iron are commonly used, except inside circle lintels, as herein provided, and wood bricks not more than eight inches in length.

SEC. 121. RECESSES FOR ALCOVES. Recesses for alcoves and similar purposes shall have not less than eight inches of brick work at the back of such recesses, and such recesses shall be not more than eight feet in width, and shall be arched over or spanned with iron or steel lintels, and not carried up higher than eighteen inches below the bottom of the beams of the floor next above.

SEC. 122. RECESSES AND CHASES IN WALLS. Recesses for stairways or elevators may be left in the foundation or cellar walls of all buildings, but in no case shall the walls be of less thickness than the walls of the the fourth story, unless reinforced by additional piers with iron or steel girders, or iron or steel coulmns and girders, properly insulated, and securely anchored to walls on each side.

SEC. 123. HOLLOW BRICKS ON INSIDE OF WALLS. The inside four inches of any wall may be built of hard burnt hollow brick, properly tied and bonded by means of full header courses every sixth course into the walls, and of the dimension of the ordinary bricks. Where hollow tile or porous terra cotta blocks are used as lining or furring for walls, they shall not be included in the measurement of the thickness of such walls.

SEC. 124. HOLLOW WALLS. In all walls that are built hollow the same quantity of stone, brick or concrete shall be used in their construction as if they were built solid as in this Code provided.

And no hollow wall shall be built unless the parts of same are connected by proper ties, either of brick, stone or iron, and placed not over twenty-four inches apart.

SEC. 125. PARAPET WALLS. All exterior and division or party walls less than fifteen feet high shall have parapet walls not less than eight inches in thickness and carried two feet above the roof.

But for warehouses, factories, stores and other buildings used for commercial or manufacturing or other purposes the parapet walls shall be not less than twelve inches in thickness and carried not less than two feet above the roof for outside walls and three feet for division or party walls.

And all such walls shall be coped with stone, terra cotta, cast iron or cement mortar a half inch thick.

SEC. 126. MANSONRY ARCHES. All masonry arches over three feet in width shall have not less than three ringers, and shall be capable of sustaining the weight and pressure which they are designed to carry, and the stress at any point shall not exceed the working stress for the material used, as given in this Code. Tie rods shall be used where necessary to secure stability in accordance with current good practice.

SEC. 127. INSIDE LINTELS. On the inside of all openings in which lintels shall be less than the thickness of the wall to be supported there may be timber lintels, which shall rest at each end not more than three inches on any wall, which shall be chambered at each end, and shall have a suitable arch turned over the timber lintel. Or the inside lintel may be of cast iron, or wrought iron or steel, and in such case stone blocks or cast iron plates shall not be required at the ends where the lintel rests on the walls, provided the opening is not more than six feet in width.

SEC. 128. ARCHES AND LINTELS. Openings for doors and windows in all buildings shall have good and sufficient arches of stone, brick or terra cotta, well built and keyed with good and sufficient abutments, or lintels of stone, iron or steel of sufficient strength which shall have a bearing at each end of not less than six inches on the wall with iron plates if desired.

SEC. 129. HEADERS IN STONE WALLS. All stone walls twenty-four inches or less in thickness, shall have at least one header extending through the wall in every three feet in height from the bottom of the wall, and every three feet in length, and if over twenty-four inches in thickness, shall have one header for every six superficial feet on both sides of the walls laid on top of each other to bond together, and running into the wall at least two feet. All headers shall be at least twelve inches in width and eight inches in thickness and consist of good flat stones. No stone shall be laid in such walls in any other position than on its natural bed. No stone shall be used that does not bond or extend into the wall at least six inches. Stones shall be firmly bedded in cement mortar and all spaces and joints thoroughly filled.

SEC. 130. STONE POSTS UNDER INTERIOR COLUMNS. Stone posts for the support of posts or columns above shall not be used in the interior of any building.

SEC. 131. PIERS AND WALLS OF COURSED STONE. Where walls or outside piers are built of coursed stones, with dressed level beds and vertical joints, the Inspector of Buildings shall have the right to allow such walls or piers to be built of a less thickness than specified for brickwork, but in no case shall said walls or piers be less than three-quarters of the thickness provided for brickwork.

SEC. 132. PARTITION WALLS IN DWELLING CLASS. Eight inch brick partition walls may be built to support the beams in such buildings when the distance between the main or bearing walls is not over thirty-three feet; if the distance between main or bearing walls is over thirty-three feet, the brick partition wall shall be not less than twelve inches thick. Provided, that no clear span in over thirty-six feet.

SEC. 133. IRON COLUMNS AND GIRDERS INSTEAD OF PARTITION WALLS. This Section shall not be construed to prevent the use of iron or steel girders, or iron or steel girders and columns when properly insulated as provided in this Code, or piers of masonry, for the support of the walls and ceilings over any room which has a clear span of more than twenty-six feet between walls, in such buildings as are not constructed fireproof. Nor to prohibit the use of iron or steel girders, or iron or steel girders and columns in place of brick walls in buildings which are to be used for residence purposes when constructed fireproof and insulated.

SEC. 134. BRICK AND HOLLOW TILE PARTITIONS. Eight inch brick and six inch hollow tile, and four inch brick or four inch hollow tile partitions, of hard burnt clay or porous terra cotta laid up with cement mortar, may be built not exceeding in their vertical portions a measurement of fifty for the eight inch, thirty-six for the six inch, and twenty-four feet for the four inch, respectively, and in their horizontal measurement a length not exceeding seventy-five feet, unless said partition walls are strengthened by proper cross walls, piers or buttresses, or built in iron or steel frame work when the latter is imbedded in or insulated by the same material of which the partition is constructed.

All such partitions shall be carried on proper foundations, or on iron or steel girders, or on iron or steel girders and columns, properly insulated, or piers of masonry.

SEC. 135. MAIN STUD PARTITIONS. In residence buildings where fore and aft partitions rest directly over each other, they shall be run down between the wood floor beams and rest on the top plate of the partition below. and shall have the studding filled in solid between the up-rights with incombustible material.

SEC. 136. VAULTS UNDER SIDEWALKS. In buildings where the spaces under sidewalks is to be utilized under a proper permit, a sufficient stone or brick wall shall be built to retain the roadway of the street and the sides, the retaining brick wall shall extend under the sidewalk to the main walls of the buildings. The roofs of all vaults shall be of incombustible material. Openings in the roofs of vaults for the admission of coal or light, or for manholes, or for any other purpose, if placed outside the area line, shall be covered with glass set in iron frames, each unit of glass to measure not more than sixteen square inches or with iron covers having a rough surface, and rabbeted into or made flush with the sidewalk. When any such cover is placed in any sidewalk, it shall be placed as near as practicable to the outside line of the curb. All vaults shall be thoroughly ventilated.

SEC. 137. AREAWAYS. All areaways shall be properly protected with suitable railings, or be covered over. When areaways are covered over, iron or iron and glass combined, stone or other incombustible materials of suitable strength shall be used, and be supported on brick or stone walls, or on iron or steel beams.

SEC. 138. WOOD COLUMNS AND PLATES. All timber columns and posts shall be squared at the ends at right angles to their axis. To prevent the unit stresses exceeding these fixed in this Code, timber or iron or steel cap and base plates shall be provided. Where wood post and girder construction is used the post must not rest directly on the wooden girder but must be continued, down through the girder and rest on an iron or steel cap on the post below; or iron or steel pintle construction may be used. No wood column shall extend below the first floor level when there is no basement.

SEC. 139. WOOD BEAMS. All wood beams and other timbers in any walls of a building of stone, brick, concrete or iron, shall be separated from the beams or

timber entering in the opposite side of the wall by at least eight inches of solid mason work; such separation may be obtained by carbeling or by joist hangers.

SEC. 140. TRIMMER AND HEADER BEAMS AND TAIL BEAMS. All wood trimmer and header beams and under all partitions shall be doubled, or shall be proportioned to carry with safety the loads they are intended to sustain. The ends of all tail beams shall be properly framed into the header beams, or hung in stirrup irons.

SEC. 141. STIRRUP IRONS. Every wood header beam more than four feet long, used in any building, dwellings not excepted, shall be suitably framed and be hung to the trimmer beams in stirrup-irons of proper thickness for the size of the timbers. When it is not practicable to frame the ends of the tail beams into header beams, the ends of the tail beams shall be hung to the header beams by stirrup irons of proper size and strength.

SEC. 142. BEARING FOR WOOD BEAMS. Every wood beam, except header beams, shall rest at one end five inches in the wall, or upon a girder as authorized by this Code, unless the wall is properly corbeled out four inches, in which case the brickwork or corbelling shall extend to the top of the floor beams.

SEC. 143. BEVEL ENDS FOR WOOD BEAMS. The ends of all wood floor and roof beams, where they rest on brick walls, shall be cut to a level of three inches on their depth and rest on a heading course of brick. All wood beams shall be at least eighteen inches from any earth and be well and properly ventilated by areaways or ventilators.

SEC. 144. ENDS OF BEAMS NOT TO REST ON STUD PARTITIONS. In no case shall either end of a floor or roof beam be supported on stud partitions, except in frame dwellings and one story buildings.

SEC. 145. BRIDGING FOR BEAMS. All wood floor and wood roof beams shall be properly bridged with cross bridging, and the distance between bridging or between bridging and walls shall not exceed eight feet.

SEC. 146. BEAMS NEAR FLUES. All wood beams shall be trimmed away from all flues and chimneys whether the same be a smoke, air or any other flue or chimney. The trimmer beam shall be not less than two inches from the outside face of a flue and four inches from

the outside of a chimney breast, and the header beam not less than two inches from the outside face of the brick or stone work of the same. For the smoke flues of boilers and furnaces where the brickwork is required to be more than eight inches in thickness, the trimmer beam shall be not less than four inches from the outside of the brickwork, and the header beam shall be not less than two inches from the outside of the brickwork. The header beam, carrying the tail beams of a floor, and supporting the trimmer arch in front of a fire place, shall be not less than twenty-four inches from the chimney breast.

SEC. 147. ANCHORS AND STRAPS FOR WOOD BEAMS AND GIRDERS. Each tier of beams shall be anchored to the side, front, rear or party walls at intervals of not more than six feet apart, with good strong wrought iron anchors of not less than one and one-half inches by three-eighths of an inch in size or its equal well fastened to the side of the beams by two or more nails made of wrought iron at least one-fourth of an inch in diameter.

SEC. 148. GIRDER STRAPS AND ANCHORS. Where the beams are supported by girders, the girders shall be anchored to the walls and fastened to each other by suitable iron straps and rest on iron plates.

SEC. 149. BEAM STRAPS. The ends of wood beams resting upon girders shall be butted together end-to-end and strapped by wrought iron straps of the same size and distance apart, and be the same size as the wall anchors. Or, they may lap each other at least six inches and be well spiked or bolted together when lapped.

SEC. 150. PIER ANCHORS. Every pier and wall, front, or rear, shall be well anchored to the beams of each story, with the same size anchors as are required for side walls, which anchors shall hook over the third beam.

SEC. 151. TIMBER FOR TRUSSES. When members of trusses are of timber they shall be stressed in the direction of the fibre only. The working stress in timber struts of stresses shall not exceed seventy-five per cent. of the working stresses established in this Code.

SEC. 152. BOLTS AND WASHERS FOR TIMBER WORK. All bolts used in connection with timber and wood beam work shall be provided with washers of such proportions as will reduce the compression on the wood at the face of the washer to that allowed in this Code, supposing the bolt to be stressed to its limit.

REQUIREMENTS FOR STANDARD MILL CON- STRUCTED BUILDINGS.

SEC. 153. FOUNDATIONS. Foundation walls to be of Portland cement concrete, hard burnt brick laid in Portland cement mortar, or stone laid in Portland cement mortar. If built of rubble stone, to be at least eight inches thicker than wall next above. If built of squared stone, or brick or concrete, to be four inches thicker than wall next above. To extend to a safe distance below front line, and in no case less than two feet below level of ground.

SEC. 154. OUTSIDE WALLS. To be of good hard-burnt brick laid in best cement, or lime and cement mortar. All exposed walls to be carried at least three feet above roof and provided with a non-combustible durable coping, all openings in same to be protected with standard fire doors or shutters, or if the exposure is not too great, approved wire glass windows in metal frames may be used. At windows and door openings, walls above to be self-supporting without the use of lintels. Sills to be brick, concrete, or terra cotta.

SEC. 155. CUT-OFF, DIVISION OF PARTY WALLS. To be of same material as outside walls. To be at least three feet parapet, and not less than twelve inches thick, projecting to cut-off overhang in roof, if any; metal roofing must not be carried over fire walls, and a non-combustible durable coping to be provided. Special provision to be made regarding parapeting where monitors or roof lanterns are near cut-off walls.

Where wooden beams enter walls at opposite sides, there must be at least twelve inches of brick work between ends of beams, and in no case shall they enter more than one-quarter the thickness of the wall.

All door openings to be protected by standard automatic fire doors (sliding doors preferred), on each side of the wall. Doors to be kept closed at nights or when not in use. All openings such as shafts and belt holes, etc., to be avoided where possible, and where present to be protected in an approved manner by standard shutters. All windows and other openings in side walls of buildings, for a distance of at least ten feet each side of fire wall to be protected as called for in this section.

Where main cut-off sections adjoin so as to form an angle, all window or other openings in side walls, for a distance of not less than thirty feet from angles, to be protected as called for in this section. Where minor sections, such as boiler or engine house, adjoin the above rule need

apply to main sections of the building only. Where there are no openings in one section, the other section need not be protected.

When buildings of different heights adjoin all windows of the higher section above the roof of the lower sections, as well as all windows within ten feet of fire walls on each section, to be protected as called for in this section.

SEC. 156. ROOFS. To be of plank and timber construction and flat except for pitch necessary for proper drainage. Planks to be not less than two and one-half ($2\frac{1}{2}$) inches (two and one-quarter ($2\frac{1}{4}$) inches dressed, splined or tongued and grooved. Timbers to be not less than six inches either dimension and to be single stick. Both roof timbers and planks to be self-releasing as regards walls. All exposed wood work to be planed smooth. Covering to be of metal, gravel, slag or approved composition.

SEC. 157. SKYLIGHTS. To be built according to the rules of the National Board of Underwriters covering Skylights.

SEC. 158. CORNICE. If any, to be of brick or incombustible material. No wood or other combustible material to be used in attaching cornice to wall.

SEC. 159. FLOORS. To be solid and without openings except as hereinafter provided. To be not less than three inches ($2\frac{3}{4}$ inches dressed) splined or tongued and grooved plank covered with one-inch ($\frac{3}{4}$ inch dressed) flooring laid crossways or diagonally. Top flooring should not extend closer than one-half inch to walls in case floor becomes wet. The space thus left to be covered by half round moulding or something similar so arranged that it will not obstruct the movement of the flooring in expanding.

SEC. 160. WATER PROOFING. Two thicknesses of water proofing paper or its equivalent to be laid between the planking and the flooring in such a manner as to make a thoroughly water-proof floor to a height of at least three inches above floor level. If the paper itself is water-proof the joints shall be swabbed with tar pitch, or their equivalent and overlapped at least two inches. If the paper is not water-proof, the entire surface of the lower layer, to be swabbed with tar, pitch or their equivalent, and the upper layer placed on the lower while hot. Water-proofing paper to be flashed up at least three inches above floor level at walls, columns and other openings and protected

with mop board. When there are no scuppers the elevator or stairwells may be used as drains for the floor, in which case the water-proofing material need not be flashed up at these points. To rest on simple stick-timbers. Floor timbers to be suitable for the load carried, but in no case less than six inches either dimension, timbers to rest on iron plates on wall ledges and where entering walls to be self-releasing, walls may be corbeled out to support timbers where necessary. Width of bays to be between six and eleven feet. All exposed woodwork to be planed smooth.

Basement floor may be concrete or other non-combustible material if preferred. Any pipes or conduits extending through floor to be fitted with metal thimbles and made watertight to a distance of three inches above floor. floors including basement floor, to be arranged to drain to elevator well or some other point where minimum damage will result from water.

SEC. 161. POSTS. To be of timber and to be proportioned in size according to the weights to be carried. The smallest cross sectional dimensions to be not less than eight inches and all corners to be rounded or chamfered. To be superimposed throughout all stories on post caps with brackets or to have ends connected by properly designed iron cap, pintle and base plate.

SEC. 162. FINISH. No wood or other combustible finish to be used. A non-combustible finish without concealed spaces may be used.

SEC. 163. STAIRWAYS AND ELEVATORS. To be inclosed in brick shaft at least twelve inches thick, or in reinforced concrete shaft. When inside of building, walls to pierce all floors and extend at least three inches above roof. Approved automatic fire doors to be installed on one side of wall at all doorways to building. Shaft to be ventilated by ordinary thin glass windows opening outside (and not exposing windows in building itself) or by thin glass skylight protected by standard wire netting, as provided in rules of the National Board of Fire Underwriters. Skylights can have a wired glass top with thin glass sides. There should be a three-foot drainage pipe at the bottom of the stair tower or elevator shaft connected with sewer or satisfactory well to carry off water coming from upper floors.

SEC. 164. PARTITIONS. To be constructed of non-combustible material or of two-inch matched plank or double matched board with joints broken, preferably coated with fire retarding paint.

SEC. 165. AREA. Area not to exceed five thousand square feet per fire section where building is not equipped with sprinklers.

SEC. 166. HEIGHT. Height not to exceed four stories or sixty feet above average ground level. No one story to be over fifteen feet high. The basement to be counted as a story if the distance between the bottom of the overhead floor girders and the average ground level exceeds three feet.

SEC. 167. HEATING. To be steam or hot water. Pipes to be properly bushed where passing through woodwork, and to be properly supported and kept away from woodwork. To be properly spaced where flyings are liable to lodge. The overhead method of steam piping is preferred.

SEC. 168. BOILER. To be in a one story brick building either detached at least twenty-five feet or with exposed or adjoining walls treated as fire walls, as specified in this section. Floor to be non-combustible.

SEC. 169. STACKS, CHIMNEYS AND FLUES. All chimneys to be of brick with joints stuck smooth on inside and provided with hard burned flue lining. Walls of flues and chimneys from high pressure boilers or furnaces to be not less than twelve inches thick and the inside four inches shall be of fire brick laid in fire mortar for a distance of twenty-five feet in any direction from source of heat. Air spaces to be provided in chimney walls where conditions render it necessary. Flue walls, exclusive of lining, to be not less than one-half the thickness of building wall at each story.

SEC. 170. UPTAKES FROM HIGH PRESSURE BOILERS. To be not less than three feet from all timbers or other woodwork.

SEC. 171. POWER. If electric or gas, to be installed according to the rules of the National Board of Fire Underwriters. All belts or rope drives used to transmit power from floor to floor to be located in a belt tower. Tower to be cut off from main building as specified, stairway and elevator walls to extend through roof at least three feet. Shaft holes through walls to be protected with standard shutters.

SEC. 172. LIGHTING. If gas, electric or acetylene, to be installed according to the rules of the National

Board of Fire Underwriters. If gas, jets to be of stationary type and burners to be at least two and one-half feet below ceiling; burners to be provided with suitable tips.

SEC. 173. INCASING interior columns and girders in non-fireproof buildings. In all non-fireproof buildings where iron or steel structural members are incorporated in the construction of the building, said iron or steel column girders, beams and other structural metal members shall be incased as described in fireproof construction, except that the thickness of such insulating material may be not less than two inches.

SEC. 174. STEEL AND IRON COLUMNS. No part of a steel or iron column shall be less than three-eighths of an inch thick. No iron or rolled steel column shall have an unsupported length of more than forty times its least lateral dimension or diameter, except as modified by this Code, and also except in such cases as the Inspector of Buildings may especially allow a greater unsupported length. The ends of all columns shall be faced to a plane surface at right angles to the axis of the column; and the connection between them shall be made with splice plates. The joint may be effected by rivets of sufficient size and number to prevent the entire stress and that the splice plates shall be equal in sectional area to the areas of the column spliced. When the section of the columns to be spliced is such that spliced plates can not be used, a connection formed with plates and angles may be used, designed to properly distribute the stress.

No material whether in the body of the column or used as lattice-bar or stay-plate shall be used in any wrought iron or steel column of less thickness than one thirty-second of its unsupported width measured between centers of rivets transversely or one-sixteenth the distance between centers of rivets in the direction of the stress.

Stay-plates are to have not less than four rivets, and to be spaced so that the ratio of length by the radius of gyration of the parts connected does not exceed forty; the distance between the nearest rivets of two stay-plates shall in this case be considered as length.

Where any part of the section of a column projects beyond that of the column below, the difference shall be made by filling plates secured to column by the proper number of rivets.

Shoes of iron or steel, as described for cast iron columns, or built shoes of plates and shapes may be used complying with same requirements.

SEC. 175. CAST IRON COLUMNS. Cast iron bearing columns shall have a diameter of not less than five inches, shell of thickness not less than three-quarters of an inch. Nor shall they have an unsupported length of more than twenty times their lateral dimension of diameter, except as modified by this Code, and except the same may form part of a staircase, and also except in such specific cases as the Inspector of Buildings may specially allow a greater unsupported length.

The top and bottom flanges, seats and lugs, shall be of ample strength, reinforced by fillets and brackets; they shall be not less than one inch in thickness when finished, and when the thickness of the column shall exceed one inch, the lugs and seats shall be of equal thickness with barrel of said column, and shall be faced at the ends to a plane surface at right angles to the axis of the column, shall be securely bolted together at the joints through flanges cast on the column, and the abutting flanges shall be one-half inch thicker than the column shell. If the column is square or rectangular, the top flange shall project not less than two and one-half inches from the outer surface of the column on all sides, and the bottom flange of the column immediately above the same shall project as far as the top flange of the column below. If the column is round or many sided, the top flange shall project not less than two and one-half inches at its least projection from the outer surface of the column, and the bottom flange of the column immediately above the same shall be of corresponding shape and project as far as the top flange of the column below. Each seat will be reinforced with a bracket placed centrally on the columns, and with fillets both on the bracket and the flange. In case the column is placed on the dividing line of the lot upon which the building is to be erected, the flanges on that side only may be omitted. The columns shall be bolted together with bolts not less than three-quarters of an inch in diameter passing through the two flanges, the bolts being of sufficient length to allow the nuts to be screwed up tightly, and as each column is placed in position, the nuts shall be tightly screwed up.

The number of bolts shall be never less than four. The holes for these bolts shall be drilled to a template.

Where cast iron columns are placed vertically one on top of the other the diameters shall be increased not less than one inch for each two stories below, the columns on the two stories above in the case of round columns, and in the case of square or rectangular columns the same ratio of increase shall follow on at least two sides of the column

in each two stories below the uppermost two columns of the vertical line. This increase in size shall apply to interior as well as to exterior columns.

The core of a column below a joint shall be not larger than the core of the column above and the metal shall be tapered down for a distance of not less than six inches.

The thickness of metal shall be not less than one-twelfth the diameter of the greatest lateral dimension of cross section but never less than three-quarters of an inch.

Wherever the core of the cast iron column has shifted more than one-fourth the thickness of the shell, the strength shall be computed assuming the thickness of the metal all around equal to the thinnest part, and the column shall be condemned and rejected if this computation shows the strength to be less than required by this Code.

Wherever blow holes or imperfections are found in a cast iron column which reduced the area of the cross section at that point more than ten per cent. such column shall be condemned and rejected.

Cast iron posts or columns not cast with one open side or back, before being set up in place, shall have a three-eighths of an inch hole drilled in the shaft of each post or column, by the manufacturer or contractor furnishing the same, to exhibit the thickness of the castings; and any other hole or holes of a similar size, which the Inspector of Buildings may require, shall be drilled in the said posts or columns by the said manufacturer or contractor at their expense.

Iron or steel shoes or plates shall be used under the bottom tier of columns when necessary to properly distribute the load on the foundation shoes shall be planed on top.

SEC. 176. GAS OR STEAM PIPE COLUMNS.

It shall be unlawful to use for columns gas or steam pipe of a greater length than fourteen feet or of a less external diameter than four inches; and in no case shall standard gas or steam pipes be used to support brick walls, except to support the fronts of one story brick buildings.

In all cases where standard gas or steam pipe is used for columns, the ends of columns shall be turned true and have iron or steel plates for bearing at the bottom and top not less than three-quarters thick by twelve inches square and column be filled solid with Portland cement concrete with a small size aggregate and bored for inspection.

SEC. 177. STEEL AND IRON GIRDERS. Rivets in flanges shall be spaced so that the least value of a rivet for either shear or bearing is equal or greater than the increment of strain due to the distance between adjoining rivets or other rules given under riveting shall be followed. The length of rivets between heads shall be limited to four times the diameter.

The compression flange of plates girders shall be secured against buckling, if its length exceeds thirty times its width. If splices are used, they shall fully make good the members spliced in either tension or compression.

Stiffeners shall be provided over supports and under concentrated loads; they shall be of sufficient strength as a column, to carry the loads and shall be connected with a sufficient number of rivets to transmit the stresses into the web plates.

Stiffeners shall fit so as to support the flanges of the girders. If the unsupported depth of the web plates exceeds sixty times its thickness stiffeners shall be used at intervals not exceeding one hundred and twenty times the thickness of the web.

SEC. 178. ROLLED STEEL BEAMS USED AS GIRDERS. When rolled steel beams are used in pairs to form a girder, they shall be connected together by bolts and iron separators at intervals of not more than five feet. All beams twelve inches and over in depth shall have at least two bolts to each separator.

Bearing plates of metal shall be used to reduce the pressure on the wall to working stress.

SEC. 179. ROLLED STEEL FLOOR AND ROOF BEAMS. All rolled steel floor and roof beams used in buildings shall be of full weight, straight, and free from injurious defects.

The distance between tie rods in floors shall not exceed eight feet, and shall not exceed eight times the depth of floor beams twelve inches and under.

Bearing plates of metal shall be used to reduce the pressure on the wall to working stress.

Beams resting on girders shall be securely riveted or bolted to the same; where joined on a girder, tie straps of at least one-half inch net sectional area shall be used, with rivets or bolts to correspond.

Anchors shall be provided at the ends of all such beams bearing on walls. The thickness of plates riveted to steel beams or channels shall not be less than one-half inch ($\frac{1}{2}$) when the same is used to carry incombustible walls, and shall be the width of the wall.

SEC. 180. TEMPLATES UNDER ENDS OF STEEL FLOOR BEAMS. Under the ends of all steel beams where they rest on the walls, cast iron or steel templates shall be built into the walls. Templates under ends of steel beams shall be of such dimensions as to bring no greater pressure upon the brickwork than allowed by this Code.

When rolled steel floor beams not exceeding six inches in depth, are placed not more than thirty inches on centers no templates shall be required.

SEC. 181. PLATES UNDER ENDS OF LINTELS AND GIRDERS. When lintels or girders of wood or steel are supported at the ends by brick walls or piers they shall rest upon cast iron or steel plates of adequate strength by the full size of the bearings.

SEC. 182. CAST IRON LINTELS. Cast iron lintels shall not be used for spans exceeding eight feet.

Cast iron lintels or beams shall be not less than three-quarters of an inch in thickness in any of their parts.

SEC. 183. FRAMING AND CONNECTING STRUCTURAL WORK. All iron or steel trimmer beams, headers, and tail beams, shall be suitably framed and connected together, and the steel girders, columns, beams, trusses and all other iron work of all floors shall be strapped, bolted, anchored and connected together, and to the walls. All beams framed into and supported by other beams or girders, shall be connected thereto by angles or knees of a proper size and thickness, and have sufficient bolts or rivets in both legs of each connecting angle to transmit the entire weight or load coming on the beams to the supporting beam or girder. In no case shall the shearing value of the bolts or rivets of the bearing value of the connecting angles exceed the stresses provided for in this Code.

SEC. 184. RIVETING OF STRUCTURAL STEEL WORK. The distance from the center of the rivet hole to the edge of the material shall be not less than:

$\frac{5}{8}$ of an inch for $\frac{1}{2}$ inch rivet.

$\frac{7}{8}$ of an inch for $\frac{5}{8}$ inch rivet.

$1\frac{1}{8}$ of an inch for $\frac{3}{4}$ inch rivet.

$1\frac{1}{2}$ of an inch for 1 inch rivet.

Wherever possible, however, the distance shall be equal to two diameters. All rivets whenever practicable shall be machine driven, the rivets in connection shall be proportioned and placed to suit the stresses. The pitch of rivets shall never be less than three diameters of the

rivet, nor more than six inches in the direction of the stress; it shall not exceed sixteen times the least thickness of the outside members. At right angle to the stress it shall not exceed thirty-two times the least thickness of the outside members. All holes shall be punched accurately so that upon assembling a cold rivet will enter the hole without straining the material by drifting. The rivets shall fill the holes completely, the head shall be hemispherical and concentric with the axis of the rivet. Gussets shall be provided whenever required of sufficient thickness and size to accommodate the numbers of rivets necessary to make a connection.

SEC. 185. BOLTING OF STRUCTURAL STEEL WORK. Whenever riveting is not made mandatory connections may be effected by bolts. These bolts shall be of wrought iron or mild steel and they shall have United States standard threads. The threads shall be full and clean. The nuts shall be truly concentric with the bolts, and the threads shall be of sufficient length to allow the nut to be screwed up tightly.

When bolts go through the bevel flanges, bevel washers to match shall be used so that head of nut or bolts are parallel, when bolts are used for suspenders, the working stresses shall be reduced for wrought iron to ten thousand pounds and for steel to fourteen thousand pounds per square inch net area, and the load shall be transmitted into the head or the nut by strong washers distributing the pressure evenly over the entire surface of the same.

Turned bolts in reamed holes shall be deemed a substitute for field rivets, but the diametrical clearness shall not exceed one sixty-fourth of an inch if bolts are used.

SEC. 186. STEEL TRUSSES. All trusses shall be held rigidly in position by efficient system of lateral and sway bracing, struts being spaced so that the maximum limit of length to the least radius of gyration, established in this Code, is not exceeded.

Any member of a truss subjected to transverse stress in addition to direct tension or compression shall have the stresses causing such strain added to the direct stresses coming on the members, and the total stresses thus formed shall in no case exceed the working stresses in this Code.

SEC. 187. RIVETED STEEL TRUSSES. For tension members, the actual net area only, after deducting rivet holes, one-eighth inch larger than the rivets, shall be considered as resisting the stress.

If tension members are made of angle iron riveted through one flange only, only that flange shall be considered in proportioning areas. Rivets to be proportioned as prescribed in this Code. If the axis of two adjoining web members do not intersect within the line of the chords sufficient area shall be added to the chord to take up the bedding strain, or the web members shall be connected by plates so arranged that the axis of the web member prolonged will intersect the axis of the chord.

No bolts shall be used in connection with rivited trusses, except when riveting is impracticable, and when the bolts shall fill the holes.

SEC. 188. IRON AND OTHER METAL FRONTS TO BE FILLED IN. All cast iron or metal plates of fronts shall be backed up or filled in with masonry of the thickness provided for in this Code.

SEC. 189. PAINTING OR METAL STRUCTURAL WORK. Where surfaces in riveted work come in contact with each other, they shall be painted before assembling. Paint shall not be required for metal structural work, which is to be thoroughly imbedded in concrete or cement grout applied directly against the metal, except where surfaces in riveted work come in contact with each other.

All metal structural work that is not to be thoroughly imbedded in concrete or cement grout shall be cleaned of all scale, dust, dirt and rust, and thoroughly coated with at least one coat of suitable paint; after erection all such work shall be painted at least one additional coat.

SEC. 190. ALL BUILDINGS OVER ONE STORY IN HEIGHT SHALL BE PROVIDED WITH ONE OR MORE STAIRS. **Stairs numbered by area of building.** In any building hereafter erected or altered, covering a lot area exceeding five thousand feet and not exceeding six thousand five hundred feet, there shall be provided at least two continuous lines of stairs remote from each other; and every building shall have at least one continuous line of stairs for each six thousand five hundred feet of lot area covered, or part thereof, in excess of that required for six thousand five hundred feet of area. When any such building covers an area of lot greater than fifteen thousand feet, the number of stairs shall be increased proportionately, or as will meet the approval of the Inspector of Buildings.

The width of the stairs required by this Section shall in no case be less than three feet six inches in the clear between hand rail or between the hand rail and an inclosed side of the stairs, and shall be increased in width when in

the opinion of the Inspector of Buildings, and increased in width if necessary for the safety of the occupants, up to five feet.

All buildings used as a store, factory, school, apartment, office building or lodging houses and all buildings of like character shall have the number of stairs that in the judgment of the Inspector of Buildings may be required considering the class of construction and its occupancy. All such stairs shall have threads of uniform width and risers of uniform height throughout in each flight, and the risers shall be not more than eight inches in height and the threads, exclusive of nosing, not less than ten inches.

All stairs shall be continuous and provided with proper banisters or railings and hand rails and kept in good repair.

SEC. 191. ENGINEERS STATIONARY LADDERS. Every building in which boilers or machinery are placed in the cellar or lowest story, shall have stationary iron ladders or stairs from such story leading direct to a manhole above the sidewalk, or other outside exit. All stairs opening on a street in brick or stone building shall be inclosed with fireproof material as approved by the Inspector of Buildings.

SEC. 192. STAIR HALLWAY INCLOSURES. In all stores, warehouses and factories, except two stories in height, the staircase hall shall be inclosed with suitable walls of brick, or with burnt clay blocks set in iron frames or such other fireproof materials and forms of construction as may be approved by the Inspector of Buildings, except that the inclosure walls in such buildings exceeding three stories in height shall be of brick, said walls or construction shall be continuous and extend at least three feet above the roof. The roof over the stair hall inclosure shall be covered with a metal and glass skylight at least three-eighths of the area of the inclosure, and constructed and glazed as required for skylights over elevator inclosure. All door openings in such stair hall inclosure shall be provided with self-closing or automatic doors in metal frames, and all window openings shall have window frames of metal, and the window sash shall be fixed sash of metal and glazed with wired glass, but no-one pane shall exceed seven hundred and twenty square inches in size. At least, one of such inclosed stair halls in each of said buildings shall have a like connecting inclosure hall-way in the first story and extend to the street, and all door or window openings in the same shall be provided with doors and windows as provided for openings in the stair hall inclosures. Escalators, or endless or revolving stairs, shall be deemed stairs

and comply with all the requirements contained in this section for the inclosure of stairs. Any hotel building having an area requiring more than one stairway, as provided in this Code, shall have at least one continuous stairway inclosed in the manner described in this Section.

SEC. 193. ROOFING IN THE FIRE LIMIT.

The planking and sheathing of the roofs of buildings shall not in any case extend across the side or party wall thereof. Every building and the tops and side of every dormer-window thereon, shall be covered and roofed with brick, tile, slate, tin, copper, iron or composition or such other incombustible roofing as the Inspector of Buildings under his certificate may authorize. And the outside of the frames of every dormer-window hereafter placed upon any buildings shall be made of some fireproof material in the fire limits.

SEC. 194. LEADERS FROM ROOFS. All buildings shall be kept provided with proper metallic leaders for conducting water from the roofs in such manner as shall protect the walls and foundations of such building or other buildings from injury. In no case shall the water from the said leaders be allowed to flow upon the sidewalk, ground or street, but the same shall be conducted by pipes to the sewer or gutter.

SEC. 195. BULKHEADS OR PENT HOUSES ON ROOFS AND SCUTTLES. Bulkheads or pent houses used as inclosures for tanks and elevators, and covering for the machinery of elevators and all other bulkheads, including the bulkheads of dwelling houses, on buildings not more than four stories in height, hereafter erected or altered, may be constructed of hollow fireproof blocks, or of wood, covered with not less than two inches of fireproof material or filled in the thickness of the studding with such material as may be approved by the Building Inspector, and covered on all outside surfaces with metal, including both surfaces and edges of doors. On fireproof buildings the bulkheads and inclosures on roofs shall be constructed of fireproof material only. All buildings hereafter erected shall be provided with a scuttle not less than thirty by twenty inches in the ceiling of same, and in all business buildings the scuttle shall be in the roof of same.

SEC. 196. MANSARD ROOFS. If a mansard or other roof of like character having the pitch of over sixty degrees, be placed on any buildings except a wood building, or a dwelling house not exceeding three stories, nor more than forty-five feet in height, it shall be constructed of

iron rafters and lathed with iron or steel on the inside and plastered, or filled in with fireproof material not less than three inches thick, and covered with metal slate or tile.

No false mansard or other similar roof construction for increasing the apparent height of a building, but having no full story behind the same, shall be placed on any building to a greater height than five feet above the cornice or the highest point of the roof beams.

SEC. 197. CORNICES AND GUTTERS. On all buildings hereafter erected within the fire limits, the exterior cornices, inclusive of those on show windows, and gutters shall be of some fireproof material. All fireproof cornices shall be well secured to the walls with iron anchors, independent of any wood work.

No cornice, not including pediments, shall extend more than five feet above the highest point of the roof beam of any building.

SEC. 198. WALLS IN RELATION TO ROOF PLANKING AND CORNICES. In all cases the walls shall be carried up to the planking of the roof. Where the cornice projects over the roof the walls shall be carried up to the top of the cornice.

The party walls shall in all cases extend above the planking of the cornice and be coped.

SEC. 199. UNSAFE CORNICES. All exterior wood cornices within the fire limit that may now be or that may hereafter become unsafe or rotten shall be taken down, and if replaced, shall be constructed of some fireproof material.

SEC. 200. CORNICES DAMAGED BY FIRE. All exterior cornices of wood or gutters within the fire limits that may hereafter be damaged by fire to the extent of one-half, shall be taken down, and if replaced shall be constructed of some fireproof material. But if not damaged to the extent of one-half, the same may be repaired with the same kind of material of which they were originally constructed.

SEC. 201. TANKS. Tanks containing more than five hundred gallons of water or other fluid hereafter placed in any story, or on the roof or above the roof of any building, now or hereafter erected, shall be supported on iron or steel beams of sufficient strength to safely carry the same. And the beams shall rest at both their ends on brick walls or iron or steel girders or iron or steel columns or piers of masonry. Such tanks shall be placed where

practicable at one corner of a building, and shall not be placed over nor near a line of stairs, unless the stairs are inclosed with brick walls of sufficient strength to support the added load of the tank and contents. All tanks shall be constructed of fireproof material.

SEC. 202. METAL SKYLIGHTS. The term "skylight" shall be taken to mean and include flat, hipped, lantern, monitor, turret, dome, vertical or pitched saw-teeth constructions, and all other coverings placed over openings on roofs for the admission of light.

All skylights placed on or in any buildings shall have the frames and sash thereof constructed of metal and glazed.

All openings in roofs for the admission of light other than elsewhere provided in this Code over elevator, stair, dumb-waiter shafts, and theater stage roofs, shall have metal frames and sash, glazed with wired glass not less than one-quarter inch thick, or with glass protected above and below with wire screens of not less than number twelve gavalnized wire, and not more than one inch mesh.

Skylights hereafter placed in buildings of a public character over any passage way or room of public resort, shall have immediately underneath the glass thereof, a wire netting, unless wired glass is used.

SEC. 203. UNPROTECTED OPENINGS IN FLOORS AND ROOFS. No opening in any floor or roof shall be without a solid covering or inclosure, as provided in this Code, to prevent the communication of fire from story to story, excepting as otherwise provided in this Code for certain staircase openings which are not required to be inclosed.

SEC. 204. METAL AWNINGS AND MARQUEE. A marquee or fixed awning projecting eight feet or less over the street line may be erected over entrances of any business front, or along the whole of a store or shop front for the purpose of better lighting the interior. All fixed awnings shall be made on metal frames and covered with sheet metal roofs, or if covered with glass it shall be either one-quarter inch wire glass or prism glass not exceeding sixteen square inches in area.

SEC. 205. A FRAME AWNING with posts of iron at outer edge of sidewalk or on gutter line covered with fireproof material. All such awnings shall not be erected unless approved by the Inspector of Buildings.

No frame awning will be allowed inside the fire limits.

The location as to height and material for all awnings shall be subject to the approval of the Inspector of Buildings.

SEC. 206. HOUSE MOVING, shall obtain a permit.

No building shall be moved on a public highway to a new location within the City limits without a permit be first issued therefor by the Inspector of Buildings. The person desiring such removal shall file with the Inspector of Buildings his written application therefor, setting forth the kind of building to be moved, its original cost, its dimensions in extreme length and height and width, its present location and the particular lot or site to which it is proposed to be moved. The Inspector of Buildings shall thereupon examine thoroughly said building, and refer the papers aforesaid relating to its removal to the Board of Commissioners together with his opinion endorsed in writing upon said application as to the present value of such building compared with the original cost, and whether the proposed removal can be made without serious injury to persons or property. The Board of Commissioners may thereupon cause to be issued a permit for such removal, designating therein the particular streets or alleys along which the removal shall be made; provided, however, that such building has not been damaged by wear and tear or other cause to an extent exceeding fifty per cent. of its first cost, and that such removal can be made without serious injury to pavements and other public improvements.

The Board of Commissioners as a condition precedent to the issuance of such permit may require a bond to be executed by the person desiring such removal, with surety to their satisfaction, which bond shall be in terms and for such amount as they prescribe, conditioned upon the strict compliance with the terms of said permit as to route to be taken and limit of time in which to effect such removal, and to repair or compensate for the repair, and to pay all damages whatsoever occasioned by or incident to such removal, and to pay to said City of Birmingham as liquidated damages an amount not exceeding fifty dollars, to be prescribed by the Board of Commissioners for each and every day's delay in completing such removal, or in repairing any damage to property or public improvements, or in clearing all public highways of all debris occasioned thereby. With the issuance of said permit the Board of Commissioners shall cause written notice thereof to be given the Superintendent of Fire Alarm, and of telephone and electric light companies, and others whose property may be effected by such removal. Damages above mentioned

relate to shade trees, pavements, curbing, and other property which may in any way be effected by the removal of houses or structures as above indicated.

No part of the above Section shall be construed so as to conflict with the ordinance covering the present or future city fire limits.

SEC. 207. FEES FOR PERMITS TO REMOVE.

No building or part of building shall be moved through the highways of the city of Birmingham without the payment of a fee of five dollars.

SEC. 208. SHED COVERINGS. Whenever buildings shall be erected or added to upon or along any street, the owner, builder or contractor constructing or repairing such buildings, shall have erected and maintained during such construction or repair, a shed over the sidewalk in front of said premises, extending from building line to curb, the same to be properly, strongly and tightly constructed, so as to protect pedestrians and others using such streets. All such sheds and inclosures are to be subject to the inspection and approval of the Inspector of Buildings.

SEC. 209. PROTECTION OF SKYLIGHTS AND ROOFS. If the walls of such buildings are carried up two stories or more above the roofs of adjoining buildings, proper means shall be provided and used for the protection of skylight and roofs of such adjoining buildings. Should said adjoining owner, tenant or lessee refuse to grant permission to have said roofs and skylights protected, such refusal by said owner, tenant or lessee shall relieve the owner of the building in course of construction from any responsibility for damage done to persons or property on or within the premises affected.

SEC. 210. PROTECTION OF PERSONS EMPLOYED ON BUILDINGS. All contractors and owners when constructing buildings where floors or fillings in between floor beams thereof are of fireproof material or brickwork, shall complete the flooring or filling in as the building progresses, to not less than within three tiers of beams below that on which the iron work is being erected. If such buildings do not require filling in between the beams of floors with brick or other fireproof material, all contractors for carpenter work, or the owners of the building in the course of construction, shall lay the under flooring thereof on each story as the building progresses, to not less than within two stories below the one to which

such building has been erected. When double floors are not to be used such contractor, or the owner, shall keep planked over the floors two stories below the story where the work is being performed. If the floor beams are of iron or steel, the contractor for the iron or steel work of buildings in course of construction, or the owners of such buildings, shall thoroughly plank over the entire tier of iron or steel beams on which the structural iron or steel work is being erected, except such spaces as may be reasonably required for the proper construction of such iron or steel work, and for the raising or lowering of materials to be used in the construction of such buildings, or such spaces as may be designated by the specifications for stairways and elevator shafts.

SEC. 211. IF ELEVATING MACHINES or hoisting apparatus are used within a building in course of construction, for the purpose of lifting materials to be used in such construction, the contractors or owners shall cause the shafts and all openings in each floor to be inclosed or fenced in on all sides by a substantial barrier, at least four feet in height, except on the side and floor where the material is being unloaded.

SEC. 212. DEMOLISHING BUILDINGS. When plans and detailed statements are filed in the Department of Buildings for the erection of a new building, if an existing building or part of an existing building is to be demolished, such facts shall be stated in the statement so filed.

In demolishing any building, story after story, commencing with the top story, shall be completely removed. No material shall be placed upon the floor of any such building in the course of demolition, but the brick, timbers and other structural parts, of each story shall be lowered to the ground immediately upon displacement. The material to be removed shall be properly wet down to lay the dust incident to its removal.

SEC. 213. FIREPROOF BUILDINGS. Every building hereafter erected or altered to be used as a lodging house, school, jail, public station, hospital, asylum, institution for the use, care or treatment of persons, the height of which exceeds two stories and basement and not more than thirty-five feet in height, and every building hereafter erected or altered to be used as a hotel, apartment house or an apartment hotel which exceeds three stories and basement and not more than forty-five feet in height (excepting all buildings for which specifications and plans have been heretofore approved by the proper

authorities), and every other building, the height of which exceeds sixty feet or more than four stories in height, shall be built fireproof, that is to say; They shall be constructed with walls of brick, stone, Portland Cement, concrete, iron or steel, in which wood beams or lintels shall not be placed, and in which the floors and roofs shall be constructed with rolled wrought iron or steel floor beams for stores, warehouses and factory buildings, and for all other buildings not more than ten feet on centers or otherwise so arranged as to spacing and length of beams that the load to be supported by them, together with the weights of the materials used in the construction of the said floors, shall not cause a greater deflection of the said beams than one-thirtieth of an inch per foot of span under the load. The beams shall be tied together at intervals of not more than eight times the depth of the beams with suitable tie-rods.

Between the floor and the roof beams shall be placed brick arches springing from the lower flanges of the steel beams, or the spaces between the beams may be filled with hollow tile arches of hard burnt clay or porous terracotta, or arches of Portland cement, concrete, plain or reinforced with metal, or other fireproof composition may be used, provided that in each and all cases the strength and method of construction shall conform to the requirements of this Code.

The stairs and staircase landings shall be constructed of brick, stone, Portland cement, concrete, iron or steel, or a combination of these materials.

No woodwork or other inflammable material shall be used in any of the partitions, furrings or ceilings in any such fireproof buildings excepting the doors and windows, and their frames and trims, the casings, the interior finish when filled solidly at the back with fireproof material, and the floor boards and sleepers directly thereunder, may be of wood, but the space between the sleepers shall be solidly filled with fireproof materials extending up to the underside of the floor boards. Doors, windows and their frames and trim and all interior finish shall be of fireproof material in all buildings over one hundred and twenty-five feet in height.

SEC. 214. HALL AND PERMANENT PARTITIONS. All hall partitions or permanent partitions between rooms in fireproof buildings shall be built of fireproof material and shall not be started on wood sills,

nor on wood floor boards, but be built upon the fireproof construction of the floor and extend to the fireproof beam filling above.

In all fireproof buildings, other than stores, warehouse and factories, if exceeding three stories or forty-five feet in height, the stair halls shall be inclosed on each story with fireproof material, the same as required for elevators, to so form an inclosure the floor area of which shall not be more than three times the united area of the floor openings for the elevators and stairs.

SEC. 215. HOLLOW TILE ARCHES OF BURNT CLAY OR TERRA COTTA. The space between the beams may be filled in with hollow tile arches of hard-burnt clay, semi-porous or porous terra cotta of uniform density and hardness of burn. The shells and web of hollow tile arch blocks shall be of such strength as will secure a suitable factor of safety for the load to be carried.

Skew-backs shall be used with all forms of hollow tile arches and be of such form and section to properly receive the thrust of the arches. The shell webs of the skew-backs shall be not less than one and one-half inches in thickness, except that the portion extending under the lower flanges of the beams shall be not less than two inches of solid material not interrupted by any interior cavities or spaces. The arches shall be of a depth and sectional area to carry the load to be imposed thereon, without straining the material beyond its safe working load, but the thickness of the shells and webs shall in no case be less than herein required, and the depth shall not be less than one and three-quarter inches for each foot of span, not including any portion of the depth of the tile projecting below the underside of the beams, a variable distance being allowed of not over six inches in the span between the beams, if the soffits of the tile are horizontal; but if said arches are segmental, having a rise of not less than one and one-quarter inches for each foot of span, the depth of the tile shall be not less than six inches. The joints shall be solidly filled with Portland cement mortar as required for common brick arches, and the arch so constructed that the key parts shall always fall in the central portion.

The shells and webs of all end construction blocks shall abut one against the other.

SEC. 216. ARCHES OF PORTLAND CEMENT CONCRETE, PLAIN OR REINFORCED WITH METAL. Or the space between the beams may be filled with arches

of Portland cement concrete, segmental in form, and which shall have a rise of not less than one and one-quarter inches for each foot of span between the beams. The concrete shall be not less than four inches in thickness at the crown of the arch, and shall be mixed in the proportions required by this Code.

The segmental arches, if reinforced, shall in all cases be reinforced or protected with steel rods or bars, or mashed steel, or similar metal weighing not less than one pound per square foot and having openings not larger than three inches square.

Such reinforcing metal if essential to secure the required strength of the arches, shall be so imbedded that the metal is covered by not less than one inch of the concrete; but if used partly or wholly as a centering for, and if not essential to secure the required strength of the arches, the metal centering need not be wholly imbedded in the concrete.

Concrete shall not be installed in freezing weather; such weather shall be taken to mean a temperature of thirty-two degrees Fahrenheit or lower; concrete shall not be allowed to freeze after being put in place, and if frozen shall be removed.

SEC. 217. FILLINGS BETWEEN FLOOR BEAMS.

Or between the said beams may be placed solid or hollow burnt clay, brick or concrete slabs, in flat or curved shapes, concrete or other fireproof composition, and any of the said materials may be used plain or in combination with wire cloth, expanded metal, wire strands, or wrought-iron or steel bars; said metals, if used, to be in all cases so imbedded in the fireproof composition or combination that the metal shall be covered by not less than one inch of the fireproof material; but in any such construction, and as a precedent condition to the same being used, tests shall be made as herein provided by the manufacturer thereof under the direction and to the satisfaction of the Inspector of Buildings, and evidence of the same shall be kept on file in the Department of Buildings, showing the nature and result of the test. Such tests shall be made by constructing within inclosure walls a platform consisting of four rolled steel beams, ten inches deep weighing each twenty-five pounds per lineal foot, and placed four feet between the centers, and connected by transverse tie rods and with a clear span of fourteen feet for the two interior beams and with the two outer supported on the side walls throughout their length, and with both a filling between the said beams, and a fireproof protection of the exposed

parts of the beams of the system to be tested, constructed as in actual practice, with the quality of the material ordinarily used in that system and the ceiling plastered below as in a finished job; such filling between the two interior beams being loaded with a distributed load of one hundred and fifty pounds per square foot of its area and all carried by such filling, and subjecting the platform so constructed to the continuous heat of a wood fire below, averaging not less than seventeen hundred degrees Fahrenheit for not less than four hours, during which time the platform shall have remained in such condition that no flame will have passed through the platform or any part of the same, and that no part of the load shall have fallen through, and that the beams shall have been protected from the heat to the extent that after applying to the underside of the platform at the end of the heat test a stream of water directed against the bottom of the platform and discharged through a one and one-eighth nozzle under sixty pounds pressure for five minutes, and after flooding the top of the platform with water under low pressure and then again applying the stream of water through the nozzle under sixty pounds pressure to the bottom of the platform for five minutes and after a total load of six hundred pounds per square foot uniformly distributed over the middle bay shall have been applied and removed, after the platform shall have cooled, the maximum deflection of the interior beams shall not exceed two and one-half inches. The Inspector of Buildings may from time to time prescribe additional or different tests from the foregoing for system of filling between iron or steel floor beams, and the protection of the exposed parts of the beams. Any system failing to meet the requirements of the test of heat, water and weight as herein prescribed shall be prohibited from use in any building hereafter erected.

Duly authenticated records of the test heretofore made of any system of fireproof floor filling and protection of the exposed parts of the beams may be presented to the Inspector of Buildings and if same be satisfactory to said Inspector, it shall be accepted as conclusive.

SEC. 218. PROTECTION AGAINST FREEZING.

No filling of any kind which may be injured by frost shall be placed between said floor beams during freezing weather, and if the filling is placed during any winter month, it shall be covered temporarily with suitable material for protection from being frozen.

SEC. 219. CINDER CONCRETE FILLING. On the top of any arch, lintel or other device which does not

extend to the plane of the underside of the floor finish, cinder concrete or other suitable fireproof material shall be placed to solidly fill up the space to a level with the top of said floor beams, and shall be carried to the underside of the wood floor beards in case such be used. Cinder concrete shall be made with not less than one part of Portland cement by volume, to ten parts of other material, and the top flanges of all beams shall be entirely imbedded in the same to a depth of not less than two inches.

SEC. 220. CENTERING. Centering where used in placing fireproof system between steel floor beams shall not be removed until such time as the mortar or materials have thoroughly set; the time at which such centering may safely be removed will vary from twenty-four hours to sixty days, depending upon temperature and other atmospheric conditions of the weather; the time for such removal to be determined by the Inspector of Buildings.

SEC. 221. STRENGTH FOR FIREPROOF FLOOR FILLINGS. All fireproof floor systems shall be of sufficient strength to safely carry the load to be imposed thereon without straining the material in any case beyond its safe working load.

SEC. 222. OPENING THROUGH FIREPROOF FLOORS. Openings through fireproof floor for pipes, conduits and similar purposes shall be shown on plans filed in the Department of Buildings.

After the floors are constructed, no opening greater than eight inches, a square shall be cut through said floors, unless properly boxed or framed around with iron; and such openings shall be filled with fireproof material after the pipes or conduits are in place.

SEC. 223. ROOF DOMES. Nothing in this section contained shall be deemed to prohibit the construction of roof domes, provided that the materials used therefor are in accordance with those specified in this section, and that the unit stresses do not exceed those fixed in this Code, and that in all respects the construction shall be satisfactory to the Inspector of Buildings.

SEC. 224. INCASING INTERIOR COLUMNS. All cast iron, wrought iron or rolled steel columns, including the lugs and brackets on same, used for vertical supports in the interior of any fireproof building, or used to support any fireproof floor shall be entirely protected with not less than four inches of hard-burned brick work, terra cotta, concrete or other fireproof material, without

any air space next to the metal, securely applied; but no plaster or paris or lime mortar shall be used for this purpose, nor shall any plaster, whether or not on metal lathing, be considered a part of the covering required. No single block or unit of insulating material used for column covering shall have a greater verticle dimension than six inches when placed in position, nor shall the shells and webs of hollow tile or terra cotta blocks be less than three-quarter ($\frac{3}{4}$) inches in thickness, and these blocks shall be laid with Portland cement mortar, and the said blocks be properly tied or anchored together.

The extreme outer edges of lugs, brackets and similar supporting metal may project to within seven-eighths of an inch of the surface of the fireproofing.

The fireproof covering shall start upon the fireproof floors, and continually extend to the fireproof ceilings or underside of girders above, and be entirely independent of any ornamental base or capital. No pipes, wires or conduit of any kind shall be incased in the fireproofing surrounding any column, girder or beams of steel or iron, but shall be placed outside of such fireproofing. Where the fireproof protection of columns is exposed to damage from trucking or handling of merchandise, such fireproof protection shall be jacketed on the outside for a height not less than four feet from the floor with sheet metal, or with vertical strips of oak, and if the oak be used for such purpose the vertical strips shall be sufficeintly separated from each other always to show that the woodwork of the guard has been placed entirely on the outside of the fireproof material which incases the column.

SEC. 225. INCASING EXPOSED SIDES AND BOTTOM AND TOP PLATES AND FLANGES OF GIRDERS AND BEAMS. The exposed sides of wrought iron or rolled steel girders supporting walls, iron or steel floor beams, or supporting floor arches or floors, shall be entirely incased with hard-burned clay, porous terra cotta, concrete or other fireproof material not less than four inches in thickness, and the bottom and top plates and flanges of such girders shall have not less than two inches in thickness of insulating material. The bottom and top plates and flanges of all wrought iron or rolled steel floor and roof beams, and all exposed portions of such beams below abutments of floor arches or filling between the floor beams shall be entirely incased with hard burned clay, porous terra cotta, concrete or other fireproof material, such incasing material to be not less than two inches in thickness. All incasing material to be

securely attached to the girders and beams. The shells and webs of all hollow tile blocks shall be not less than three-quarter ($\frac{3}{4}$) inches in thickness, and shall be laid up with Portland cement mortar, and the said blocks be properly tied or anchored together.

SEC. 226. INCASING INTERIOR COLUMNS AND GIRDERS IN NON-FIREPROOF BUILDING.

In all non-fireproof buildings where iron or steel structural members are incorporated in the interior construction of the building, said iron or steel columns, girders, beams, and other structural metal members carrying brick or incombustible walls shall be increased as before described in this Section, except that the thickness of such insulating material may be not less than two inches.

SEC. 227. SKELETON CONSTRUCTION BUILDINGS.

Where columns are used to support iron or steel girders, carrying inclosure walls, the said columns shall be of rolled steel, and on their exposed surfaces be constructed to resist fire by having a casing of brickwork not less than eight inches in thickness on the outside surfaces, not less than four inches in thickness on the inside surfaces, and all bonded into the brickwork of the inclosure walls. Between the said inclosing brickwork and the columns there shall be a space of not less than two inches, which space shall be filled solidly with liquid cement grout as the courses of the brickwork are laid. The exposed sides of wrought iron or steel girders shall be similarly covered with brickwork not less than four inches in thickness on the outer surfaces and tied and bonded, but the extreme outer edge of the flanges of beams or plates or angles connected to the beams, may project to within two inches of the outside surface of the brick casing. The inside surfaces of girders may be similarly covered with brickwork, or if projecting inside of the wall they shall be protected by terra cotta, concrete or other fireproof material not less than four inches in thickness. Girders for the support of the inclosure walls shall be placed at the floor line of each story. The skeleton steel frame of a building shall be independent from that of an adjoining building, and the frame of one building shall not be bolted or riveted in any manner to the frame of another building.

SEC. 228. SPECIFICATIONS COVERING THE USE OF REINFORCED CONCRETE SUPERVISION.

Reinforced concrete or combination system of reinforced concrete with other structural material, or any system

of flat arch construction, must be installed under the constant supervision of a competent superintendent, whose name shall be submitted in writing to the Inspector of Buildings prior to installing the work.

SEC. 229. PLANS. Before a permit to erect any reinforced concrete structure or any structure containing reinforced concrete is issued, complete specifications and plans shall be filed with the Inspector of Buildings showing the details of the proposed construction, including the kind of reinforcing bars and stirrups, their sizes, positions and number, their laps, bonds and cross sections. All continuous rods shall be clearly shown with their lengths and dimensions.

SEC. 230. CEMENT. Only Portland cement shall be used which conforms to the Standard Specifications of the American Society of Civil Engineers for testing material. All cement shall be tested in lots of not more than one car load, and the Inspector of Buildings may at any time demand that certified copies of all test records be submitted to him for examination. The minimum requirements for tensile strength for briquettes one inch square in section, shall be:

24 hours in moist air.....	175	lbs.
7 days (1 day in air, 6 in water).....	500	lbs.
20 days (1 day in air, 27 in water).....	600	lbs.

One part cement, three parts Standard Sand:

7 days (1 day in air, 6 in water).....	170	lbs.
28 days (1 day in air, 27 in water).....	240	lbs.

SEC. 231. AGGREGATE PROPORTIONS. The aggregate shall consist of sand and broken stone, gravel, slag or cinders as hereinafter described. Volume for volume, the cement shall constitute not less than one-ninth of the aggregate, and the sand shall ordinarily be equal to fifty per cent. of the stone or gravel. The proportion of the same to the stone or gravel may, with the consent of the Inspector of Buildings, be varied slightly to secure a concrete of maximum density.

SEC. 232. CONCRETE SAND. All sand shall be of an approved quality, clean, sharp and coarse and silicious, and shall consist of both large and small grains and not contain over five per cent. of silt or clay.

SEC. 233. BROKEN STONE. The stone must be of an approved quality, three-quarter inch and under, and

no stone shall be used that exceeds three-quarter inch in its greatest dimensions. Stone must be machine broken, free from loam, dirt or other foreign substance, and free from an unreasonable amount of stone dust. Stone shall be well wet immediately before being used.

SEC. 234. GRAVEL. All gravel shall be one inch and under, clean and free from all foreign substance. Any gravel covered with clay, etc., shall be immediately rejected. Gravel shall be well wet immediately before being used.

SEC. 235. REINFORCING STEEL. All steel shall be tested, if required by an approved testing laboratory and the Inspector of Buildings may at any time demand that certified copies of all test records be submitted to him for examination.

Steel reinforcing shall be divided into two classes, medium and high tension.

SEC. 236. MEDIUM STEEL. Shall have an ultimate strength of sixty or seventy thousand pounds per square inch elastic limit not less than one-half the ultimate strength, elongative 22 per cent. bending test 180 degrees to a diameter equal to thickness of piece tested, without fracture on outside of bent portion.

SEC. 237. HIGH TENSION STEEL. Shall have an ultimate strength of not less than eighty thousand pounds per square inch and a working stress of 35,100 of the elastic limit may be allowed but not to exceed 20,000 pounds per square inch. The elongation shall be at least ten per cent. in eight inches. Bars shall bend cold around a pin of diameter equal to four times the least dimension of the bar without sign of cracking. Bars showing fractures, when bent to the required shapes shall not be used. Round, square, flat or mechanical bond bars (or other mechanical bond steel) or structural steel shapes or wires or combinations of these several classes of steel, may be used for reinforcement, provided that the necessary adhesion is available for developing the strength of the steel reinforcement. When stirrups are necessary, they may be loose or rigidly attached, provided that the stirrups are designed so as to transfer the shear increments to the horizontal reinforcements in a manner satisfactory to the Inspector of Buildings. Inclined loose stirrups shall not be used. The connection of inclined reinforcing stirrups to the horizontal reinforcement shall be so designed that at least seventy-five per cent.

of the ultimate strength of the stirrups may be transmitted through the metallic connection of the stirrups to the horizontal bars. All reinforcing steel shall be made free of paint, dirt, oil, grease, scale and rust flakes before being incased in concrete. All steel shall be straight where so called for on the plans, or bent accurately to the shapes called for on the plans. All steel shall be protected, its thickness, but never less than one-half inch with concrete.

SEC. 238. WEATHER AND PROTECTION OF THE WORK. No work shall be done in freezing or unsuitable weather, and care shall be exercised in protecting the work against frost and excessive heat. In summer where the concrete is exposed to the sun, it shall be kept wet and in winter the work must be protected from the frost.

SEC. 239. CENTERING AND FORMS. All forms shall be built in a substantial manner, plumb and true, with tight joints, so that no appreciable part of the concrete mixture can escape, and shall be supported and braced that they will carry all the usual loads which may come upon them without springing or deflection.

An opening shall be left at the bottom of all columns form for cleaning and for adjusting the steel. This opening shall not be closed until all is in readiness for pouring the columns. The forms shall be carefully cleaned just before concreting and all chips, ice and other foreign matter removed. Before removing the shores under any beam or girder, the column supporting it shall be stripped, so that the column may be examined on all sides.

Pouring columns in chases left in the masonry shall not be allowed.

Provided ample shores are used to carry the floor weight column forms may be removed in not less than four days after pouring. The time which should elapse before removing the shores under the beams and girders varies with the design and condition of the weather, but should not be removed in less than three weeks after pouring. The supports under floor slabs shall not be removed in less than ten days after pouring.

SEC. 240. CONCRETING. All concrete for reinforced work shall be a wet mix, but not sufficiently wet to separate the cement from the aggregate. The concrete shall be mixed until all the ingredients have become thoroughly incorporated and each pebble or stone thoroughly coated with mortar. The concrete shall be placed

immediately after mixing, and no concrete that has attained its initial set shall be used, but must be immediately hauled from the work. The concrete shall be well worked around the steel, spaded and tamped in such a manner as to eliminate all possibilities of voids.

In monolithic work the days work shall end in vertical joints at the center of slabs or beams, or at the center of support. A slab or beam once started shall be carried to its full thickness in such a manner that no portion of the concrete shall be allowed to stand more than ninety minutes before being covered with fresh concrete. Exceptions to the methods of stopping concrete, given above, may be made by the Inspector of Buildings for special cases, but no concreting shall be stopped near joints of concentrated loads or heavy shear.

The steel reinforcement shall be properly held in position so that the placing of the concrete will not disturb it, and so that the relationship of the individual pieces of steel reinforcement to each other, and to the limiting dimensions of the concrete shall be in accordance with plans approved by the Inspector of Buildings.

The surface of the concrete, which has set, and upon which surfaces new concrete is to be laid, shall be cleaned so as to remove all foreign material and laitance. In walls such surfaces shall be grooved for bonding purposes.

Columns shall be built at least twelve hours in advance of the beams and girders which they are to support. The construction of a reinforced concrete column shall continue without interruption to the underside of a beam or girder.

SEC. 241. TESTS. Tests shall be made by the builder, when required by the Inspector of Buildings and under his direction, for two times the calculated safe live load. These tests shall be made at such times and at such places, as may be directed and the builder held responsible for any damage that may result from said tests.

SEC. 242. ALLOWABLE STRESSES. Extreme fibre stress for one to two to four concrete (1:2:4) compression (bending) six hundred and fifty pounds per square inch.

Extreme fibre stress 1:2:4 cinder concrete, two hundred fifty pounds per square inch.

Rock concrete in direct compression, 1:2:4 mix, five hundred pounds.

Rock concrete in direct compression 1:1½:3 mix, six hundred pounds per square inch.

Shearing "stress" in concrete, fifty pounds per square inch.

Tensile stress in concrete, twenty pounds per square inch.

Tensile strength in steel sixteen thousand pounds per square inch.

Compression strength of steel in combination with concrete, seven thousand five hundred pounds per square inch.

The following general assumptions and rules will be used in checking the design submitted to the Inspector of Buildings for approval:

(1) Calculations will be used on working stresses and safe loads.

(2) The strain in any fibre is directly proportionate to the distance of that fibre from the neutral axis, and the tensile strength of the concrete neglected.

(3) The ratio of the modulus of elasticity of the steel to the modulus of elasticity of the concrete will be assumed as twelve.

SEC. 243. NOTATION FOR FORMULA.

W—Total load (live or dead), uniformly distributed in pounds.

w—Live and dead loads per square foot floor in pounds.

a—Square inches of steel in beam to one foot width of slab.

b—Depth from top of beam or slab to center gravity of steel reinforcement, in inches.

d—Width of beam in inches.

l—Length of span in feet.

Formula for beams when continuous with other beams over common support at each end:

No. 1 W equals $\frac{13,700 a d}{L}$

Formula for end spans, one fixed and anchored to column, with column above, and other and continuous over common support.

No. 2 W equals $\frac{11,400 a d}{L}$

Formula for beam without continuous or fixed ends.

No. 3 W equals $\frac{9,150 a d}{L}$

In using the Formulas No. 1, No. 2, and No. 3, the following caution must be observed:

For concrete proportioned 1:2:4, the area of steel or "a" must not exceed 14-1,000 of $d \times b$; or 1.4 per cent. of the concrete above the steel.

For concrete proportioned 1:2½:5, --a 12 b d

For concrete to proportioned 1:3:6---a 10 b d

When more than 1.4 per cent. of steel is used the concrete must not be poorer than 1:2:4 mix and the strength of the beams when continuous may be computed by the following formula:

4 W equals 210 d b for 2 per cent steel or a $\frac{L}{50}$ b d

5 W equals 235 b d for 3 per cent. steel or a $\frac{L}{3}$ b d

6 W equals 251 b d for 4 per cent. steel or a $\frac{L}{4}$ b d

In using the above formula for end spans use 5-6 of the above values determined for W and for beams simply supported use ⅔ of W

For steel percentages varying between 1:4 and 2:2 and 3:3 and 4 of $b \times d$; values of W may be interpolated from these derived from formulas numbers 1, 4, 5 and 6.

Beams to be considered continuous and must have as much reinforcement at top of beam over support as required at center of span and a portion of said reinforcement must extend to the quarter point of each adjoining beam.

The following formula may be used for slabs at interior panels with alternate rods bent up over support and extending at least one foot beyond beam.

No. 7 W equals-----18,300 a d

For end panels alternate rods bent up:
No. 8 W equals-----13,700 a d

For slabs supported only:
No. 9 W equals-----9,150 a d

For square floor plates, reinforcing rods in each direction and alternate rods bent up:

No. 10 W equals ----- 22,800 a d

L

SEC. 244. SHEARING STRESSES. All beams must have ample provisions for shearing stresses. The shearing strength of the beam at any section shall be considered as equal to $50 \times b \times d$. ($50 b d$). Should the shear at any section exceed this amount, vertical or inclined stirrup or bent up rods must be used sufficient to provide for the excess of the actual stress over the strength of the concrete for that immediate section. Shear members must be used in all beams.

In case inclined stirrups are used they must be rigidly attached to the bottom reinforcing rods. In case loose stirrups are used they must be vertically placed and pass under the bottom reinforcing rods, and preferably have their upper ends bent outward into the concrete slab. All web reinforcing should extend to within two inches of the top of the slab.

SEC. 245. REINFORCED CONCRETE COLUMNS. Reinforced concrete columns shall not be used with a height greater than fourteen times the least diameter. All columns have vertical reinforcing rods, four or more in number, which shall extend from the base of the columns to top of beam above or in case of a superimposed column at least fifteen inches into said column. vertical rods shall be banded together with tie rods of a size not less than 5-16 inch round section and spaced not farther than the least dimensions of the columns apart. Smaller tie rods may be used if the spacing is proportionately less. Columns of length from twelve to fourteen times the least diameter must have a total vertical reinforcement of not less than 1.5 per cent of the area of the column; for lengths of ten to twelve, diameters 1.25 per cent, the area of column; for lengths less than ten diameters, 1 per cent. of the concrete section. In estimating the safe loads for reinforced concrete columns the effective area of the concrete shall be considered for diameters 2 inches less than the actual diameters used, 1 inch all around being allowed for fire protection. Unit stresses for the net concrete area as estimated above to be as follows:

- (A) Column supporting balanced loads:
- 600 lbs. per square inch for 1:2:4 concrete,
 - 550 lbs. per square inch for 1:2½:5 concrete
 - 500 lbs. per square inch for 1:3:6 concrete,

(B) Columns supporting balanced loads on two sides and unbalanced load on the third side:

- 500 lbs. per square inch for 1:2:4 concrete,
- 450 lbs. per square inch for 1:2½:5 concrete,
- 400 lbs. per square inch for 1:3:6 concrete,

(C) Columns supporting two unbalanced loads at adjacent sides:

- 400 lbs. per square inch for 1:2:4 concrete,
- 350 lbs. per square inch for 1:2½:5 concrete,
- 300 lbs. per square inch for 1:3:6 concrete,

The vertical steel rods shall not be estimated as supporting any of the loads unless without joints from end to end or if joints exist the rods shall be connected by turn-buckles or other satisfactory method of rigid connection. In case the rods are thus connected the steel may be estimated at six thousand pounds, per square inch of section.

The vertical rods must be uniformly spaced about the circumference of the column or at the corners in the case of square or rectangular sections, and about two inches from the outer face. In placing the concrete it must be shoveled into the forms, and not dumped from wheelbarrows and constantly puddled with rod to secure a uniform and dense mass without voids.

SEC. 246. ELEVATORS. In any building over two stories in height in which there exists any hoistway or freight elevator or well-hole not inclosed in walls, constructed of brick or other fireproof material and provided with fireproof doors, the opening thereof through and upon each floor of said buildings shall be provided with and protected by a substantial guard or gate and with good and sufficient automatic trap-doors, properly counter weighted, covered with tin on the under sides and edges, in accordance with standard for fire doors, and so constructed as to form a substantial floor surface when closed.

The guards or gates and railings shall be of such material and form of construction as may be approved by the Inspector of Buildings.

Such guards or gates shall be kept closed at all times, except when in actual use, and the trap doors shall be closed at the close of business of each day by the occupant or occupants of the building having the use or control of same.

SEC. 247. ELEVATORS AND INCLOSURES. All elevators other than those referred to in the above section, hereafter placed in any building, shall be inclosed in suitable walls of brick, or with a suitable framework of iron or

burnt clay filling, or with such other fireproof material and form of construction as in the opinion of the Inspector of Buildings may be equally as good. Except that the inclosure walls in non-fireproof buildings exceeding three stories in height and used as warehouses, stores, or factories shall be of solid brickwork.

If the inclosure walls are of brick, laid in cement mortar, and not used as bearing walls, they may be eight inches in thickness for not more than fifty feet of their uppermost height, and increasing in thickness four inches for the remaining lower portion or part thereof.

In fireproof buildings, when the construction of the elevator inclosure is of iron frame-work and burnt clay filling or other approved material, the said construction shall be not less than six inches in thickness. Said walls or construction shall in all cases extend through and at least three feet above the roof except in fireproof construction. All openings in any said inclosure shall be provided with approved self-closing fire doors or approved automatic closing fire doors except window openings in exterior walls which may be provided with wired glass in approved metallic frames and sash, and shall have iron, stone or cement concrete door sills of the full width and length of the openings. In buildings other than stores, warehouses and factories, lights of wired glass, in approved metal frames and sash may be placed in such doors, but no one pane shall exceed seven hundred and twenty square inches in size.

All passenger elevators shall be equipped with automatic stopping devices at top and bottom of run, also a safety break by a governor on the car and a safety breaking device on the machine. The cars of all elevators must be constructed of fireproof material, except that the interior trim and floor may be of wood. The entrance and exits of all passenger and combination elevators cars shall be from one side only, unless sliding door in car, the same to be closed before starting car.

The doors used for openings in dwelling houses intended for the occupancy of one family may be of wood covered on the inner surface and edges with metal, not including the opening in the cellar, nor above the roof in any such shaft walls, which latter doors shall be entirely covered with metal. The roofs and pent houses over all inclosed elevators and dumb waiters shall be made of fireproof materials, with a skylight at least three-fourths of the area of the shaft; the glass to be not more than one-eighth of an inch thick and covered above and below with

strong wire netting, but wired glass shall not be used in skylights over elevator inclosure.

SEC. 248. BOTTOM OF ELEVATOR SHAFTS.

When the shaft does not extend to the bottom of the cellar or lowest story, the lower end shall be inclosed in fire-proof material.

SEC. 249. INCLOSING ELEVATOR-OPERATING MACHINERY. When the inclosure of an elevator has an opening to accommodate machinery for operating same, such as shaft, pulleys, drums, cables, etc., said machinery shall be inclosed in a similar manner to the shaft.

The door at the sidewalk level of the elevator or lift shall be of wrought iron or steel, and be self-closing or automatic.

SEC. 250. DUMB-WAITER SHAFTS. All dumb-waiter shafts, other than those which do not extend more than three stories above the cellar or basement in private dwelling houses, shall be inclosed in suitable walls of brick or with burnt clay blocks set in iron frames of proper strength, or such other fireproof material and form of construction as in the opinion of the Inspector of Buildings may allow. Said walls or construction shall extend at least three feet above the roof.

SEC. 251. DOORS IN DUMB-WAITER SHAFTS. a dumb-waiter in other than dwellings shall be considered a special form of elevator whose dimension shall not exceed three feet square and four feet in height and which is designed for carrying light articles and is provided with one or more shelves.

All openings in the inclosure walls or construction shall be provided with self-closing fireproof doors.

When the dumb-waiter is carried through the cellar or lowest story of any building it shall be inclosed in that story with brick walls not less than eight inches thick.

SEC. 252. BOTTOM AND TOP OF DUMB-WAITER SHAFTS IN OTHER THAN DWELLINGS. When the shaft does not extend to the floor level of cellar or lowest story, the bottom of the shaft shall be constructed of fireproof material.

When the shaft does not extend through the top story and does not extend through more than three stories, the top of the shaft shall be also constructed of fireproof material.

When the shaft extends through more than three stories it shall be carried above the roof, as before provided.

SEC. 253. INSPECTION, INSTALLATION, ALTERATION AND OPERATION OF ELEVATORS.

The Inspector of Buildings shall cause an inspection of elevators carrying passengers or employes to be made. And shall make regulations for the inspection, installation, alteration and operation of such elevators, and shall also make regulations for the installation, alteration, and operation of freight elevators with a view to safety if required. The regulations shall require any repairs found necessary to any such passenger or employes' elevators to be made without delay by the owner or lessee.

In case defects are found to exist which endanger life or limb by the continued use of such elevator, then, upon notice from the Inspector of Buildings, the use of such elevator shall cease, and it shall not again be used until a certificate shall be first obtained from the Inspector of Buildings that such elevator has been made safe.

SEC. 254. PERMITS MUST BE OBTAINED.

No person or persons, company or corporation, shall hereafter build or install, or cause to be built or installed, any passenger or freight elevator, or rebuild or change, or cause to be rebuilt or changed, any part of the machinery, car, shaft, or hatchway, in any building in the City of Birmingham, until the person or persons, company or corporation, shall have filed with the Inspector of Buildings a statement of specifications, or both, if deemed necessary by the Inspector of Buildings, giving all the required information in regard to the manner of construction and the material to be used in or about said machinery, car, shaft, or hatchway, and in addition thereto, shall file full working plans when required, and shall apply to said Inspector of Buildings for a permit to perform such proposed work before proceeding therewith.

It shall not be lawful to proceed to build, install, rebuild, or change any elevator within the City of Birmingham without such permit, and a fee of \$2.00 shall be charged for the same.

SEC. 255. STANDPIPES. In every building exceeding seventy-five feet and not over one hundred and twenty-five feet in height, there shall be provided a vertical standpipe of not less than four inches in diameter. In every building exceeding one hundred and twenty-five feet in height there shall be provided a vertical standpipe of not less than six inches in diameter. These standpipes shall be of wrought iron or steel, galvanized and together with fittings and connections, shall be of

such strength as to safely withstand at least three hundred pounds water pressure to the square inch when installed and ready for service; also to stand such a test without leaking at joints, valves or fittings. Standpipes shall be located within fireproof stairway inclosures where the latter is of such construction and as near stairways as possible where they are not so inclosed.

In buildings exceeding one hundred feet deep fronting on two or more streets there shall be a standpipe at each end of building, and in large area buildings there should be a standpipe at each stairway, or within each stairway inclosure.

Where more than one standpipe is required in a building they shall be connected at their bases by pipes equal to that of the largest standpipes, so that water from any source will supply all the standpipes. Standpipes shall extend from the cellar to and through the roof, with a hose connection located from four to six feet above floor level, fitted with approved straightway composition gate valve in each story, including cellar, and a hose connection provided above the roof with the valve controlling latter, located in the standpipe under the roof and arranged to be operated both above and below the roof. A suitable three-quarter-inch drain pipe and valve shall be provided under the roof for each roof connection. Hose sufficient to reach all parts of the floor shall be attached to each outlet in the building, and hose for roof hydrant may be placed on rack in top floor near the scuttle leading to the roof. Hose shall be two and one-half or two and five-eighths inches in diameter, in fifty foot lengths, and provided with standard couplings at each end, all couplings to be of same hose thread as that in use by local fire department.

Hose to be approved lined, made under specifications recommended by the National Board of Fire Underwriters. Each line of hose shall be provided with washers at both ends, and be fitted with smooth bore play pipe or nozzle of Underwriter pattern, having handles at the base and with discharge outlet not less than three-quarter inch in diameter.

One spanner to be located at each hose connection throughout the building. All standpipes shall be provided with a Siamese steamer connection, located on the outside of the building about one foot above the curb level, and where a building fronts on two or more streets, a connection to be provided on each street front. Inlet pipe from steamer connection to standpipe to be not less than the

diameter of the larger standpipe. The threads on the Siamese connection shall be uniform with that used by the local Fire Department. Siamese steamer connection shall be provided with check valves in the "Y" and substantial care provided to protect thread on the connection. A suitable iron plate with raised letters shall be secured to wall near steamers connection reading: "TO STAND-PIPES."

In each connecting pipe just inside of the building, in a horizontal section shall be placed a straightway check valve, but not a gate valve. A drip pipe with valve to same, shall be placed between said check calve and steamer connection to properly drain this section to prevent freezing. In addition to the provision made for steamer connections to standpipes, the water supply may be from the City water where pressure is sufficient for automatic fire-pump of five hundred gallons or more capacity per minute, elevated tank or steel pressure tank of not less than five thousand gallons capacity.

In all buildings coming under these regulations as to height which are occupied for living or sleeping purposes, such as hotels, lodging houses, hospitals, and asylums, the standpipe system must have at least one of the approved supplies before described.

Where a standpipe is connected to a tank there shall be a straight way check valve in a horizontal section of pipe between the first hose outlet in connecting pipe and tank, and said tank must be filled by a separate pipe, and not through the standpipe; and where the water in such tank is also used for house supply, the house supply pipe shall extend from the bottom of the tank to such a height as will reserve not less than thirty-five hundred gallons of water for fire purposes.

Where pumps constituting a supply to standpipes are located in the lowest story of the building, they shall be placed not less than two feet above the floor level, and boilers upon which pumps depend for steam shall be arranged so that flooding of fires under same will be impossible.

In every building exceeding one hundred and twenty-five feet in height, at least one passenger elevator shall be kept in readiness for immediate use by the fire department during all hours of the night and day, including holidays and Sundays.

SEC. 256. AUXILIARY FIRE APPLIANCES. All existing buildings and those hereafter erected exceeding one hundred and twenty-five feet in height shall be provided with auxiliary fire apprratus and appliances, such

as wrenches, fire extinguishers, spanners, hooks, axes and pails, as may be required by the Chief of the Fire Department; all of said apparatus to conform in design to those in use by the local Fire Department.

SEC. 257. SPRINKLER PIPES IN BASEMENTS AND CELLARS OF MERCANTILE MANUFACTURING BUILDINGS. All sub-basements shall have a sprinkler system, and in such buildings as are used or occupied for mercantile and manufacturing purposes there shall be provided in addition to said standpipe or standpipes, an approved system of automatic sprinklers placed at the ceiling of each story below the first or grade floor and extending to the full depth and breadth of the building.

Buildings of large area which are occupied for mercantile or manufacturing purposes, when located within a congested district forming, in the opinion of the Inspector of Buildings, of Chief of the Fire Department, "Conflagration Breeders," shall be protected throughout the entire building with automatic sprinkler. The pipe sizes and spacing of heads for said sprinkler system shall conform to the schedule and rules recommended by the National Board of Fire Underwriters, which are hereby made a part of the requirements of this Code.

Said sprinkler pipes shall be connected with a pipe of not less than four inches in diameter, leading to the outside of the building and there provided with an approved Siamese steamer connection, latter to be installed under the requirements set forth in this Section, and to be under the control and for the use of the Fire Department. A suitable iron plate with raised letters shall be securely attached to the wall near said steamer connection, reading, "Cellar Sprinklers," where sprinklers are installed in cellars only, and reading "Automatic Sprinklers" where the entire building is so protected.

For any failure to comply with any provision contained in this Section, the owner, lessee, tenant and person in charge or control of the building, are each and all responsible, and for any failure to connect any of the standpipes, fire appliances, or sprinkler pipes specified and required in this Section, with the water works system of the City, or with some adequate source of water supply.

SEC. 258. FIRE ESCAPES. All buildings more than two stories high in any part, or in whole, now or hereafter used in any part, or in whole, as a public or private building, public or private institution, sanitorium, surgical institute, asylum, school house, theater, hall,

office, dormitory, place of assemblage, or public resort, store or store building, mills or manufacturing building, and all buildings used as factory, mercantile or other establishment, and every public or private hotel, apartment, tenant or flat building, boarding houses, lodging or sleeping house, shall be provided with standard fire escapes, or other fire escapes equally as good, as hereinafter prescribed, to be located as remote from stairs as possible, and shall be easily accessible to all the occupants of the building without passing through living or sleeping rooms, or rooms which have locks or bolts that will fasten or otherwise obstructed and with the proper signs and red letters denoting the location of the fire escape. The inspector of Buildings and Chief of the Fire Department shall constitute a Board to pass on fire escape, and no fire escape shall be accepted without their approval, and they shall have the authority to decide the number and location of the same, and all fire escapes now or hereafter erected, that shall become unsafe or in need of change or repairs, the Chief of the Fire Department shall serve notice to make such repairs or changes within ten days and it shall be the duty of the owner, agent, proprietor or manager of any such building, to make such repairs or changes within the time as required by notice, and further the Inspector of Buildings and Chief of the Fire Department shall have authority in case of any fireproof buildings or other buildings that in their judgement they may deem such escape not necessary in consequence of adequate provisions having been already made for the safety in case of fire, and in such cases of exemptions they shall give the owner of the building a written certificate to that effect and their reasons therefor if so desired.

And the certificate shall only be valid so long as the condition exists that the same was given under. The certificate shall be signed and approved by the President of the Board of Commissioners of the City of Birmingham.

All buildings requiring standard fire escapes under this ordinance shall be of the following character of steel: Brackets one-half inch by two inches well braced and not more than four feet apart, brackets to extend through the wall with six inch washers and nuts, lower part of brackets to extend in the wall two inches with a turn-down on the outside and the brackets to be full width of the balcony. Balcony bottom rail two inches by two inches by one-fourth inch angle well bolted to brackets, bottom center rail to be one and three-fourth by one and three-fourths inch by one-fourth inch angle, balcony floor

one-fourth inch by two inches by two inches apart riveted to bottom rail. Top rail to be one and one-fourth inch by one and one-fourth inch by one-fourth, angle to extend through the wall with six inch washers and nuts. Corner post to be one and one-fourth by one and one-fourth inch by one-fourth inch angle well riveted to tops and bottom rails. Balusters to be one and one-fourth inch by one-fourth inch, three feet high, spaced not more than twelve inches on centers each way, well riveted to rails. Stair string to be one-fourth inch by four inches. Threads, two and five-eighths inch rungs, well riveted to stair string. Stair string shall not set at angle of more than sixty degrees. No rise shall be over fourteen inches. Stairs shall be well secured to platform using extra cross bars at bottom of stairs. All stairs must have three-fourths inch hand rails well braced. Drop ladders below balcony when required to be eighteen inches wide of one and one-half inch by three-eighth inch for sides three-fourths inch round, placed not over fourteen inches apart, well screwed to sides. If required by the Inspector of Buildings stairs to be used to ground or landing, and made to lower or raise with weights or pulleys as instructed. When required a ladder or stair to extend to roof well braced and extend over the wall to roof and bolted to cross-head under joist, the side to be of one-half inch by two inch, the rungs to be three-fourths round to be well riveted to side and spaced not over fourteen inches apart. There shall be a balcony at each floor and a well hole of the proper size in each floor. No balcony shall be less than three feet wide and four feet long. Stairs shall be not less than eighteen inches. All persons whose duty it is to erect fire escapes shall submit drawings and specifications based upon the above sizes for an average fire escape, but if in the judgment of the Inspector of Buildings, the above size is not sufficient for safety they shall be increased. No fire escape shall be erected until plans and specifications have been approved by the Inspector of Buildings and a permit taken out for the same.

SEC. 259. PAINTING. All the parts of such fire escapes shall receive not less than two coats of paint, one in the shop and one after erection.

NOTICE PLATES ON FIRE ESCAPE BALCONIES. In constructing all balcony fire escapes, the manufacturer thereof shall securely fasten thereto, in a conspicuous place a cast iron plate having suitable raised letters on the same to read as follows: "Notice. Any person placing any incumbrance on this balcony is liable to a penalty of ten dollars and imprisonment for ten days."

SEC. 260. SCUTTLE LADDERS. All buildings requiring fire escapes shall have stationary iron ladders leading to the scuttle opening in the roof, thereof, and all scuttle and ladders shall be kept so as to be ready for use at all times.

SEC. 261. BULKHEAD STAIRS AND DOORS. If a bulkhead is used in place of a scuttle, it shall have stairs with sufficient guard or hand rail leading to the roof. In case the building shall be occupied by more than one family, the door in the bulkhead or any scuttle shall at no time be locked, but may be fastened on the inside by movable bolts or hooks.

SEC. 262. METAL FRAMES. All brick, stone or concrete buildings three stories or more in height except private dwelling houses and churches when within thirty feet of any opposite or exposing wall or building shall have the opening in all outside walls protected by standard wired glass windows in approved metal frames, and approved metal shutters on old buildings, and standard metal-clad fire doors or their equal as may be required by the Inspector of Buildings.

These to be securely attached to the masonry in an approved manner. When in the opinion of the Inspector of Buildings, extra protection be necessary for any openings on account of abnormal exposures, either double-glazed metal window frames or single glazed metal windows protected by approval system of open sprinklers may be required. All occupants of buildings shall close all exterior and interior fireproof shutters or doors at the close of the business of each day. All shutters opening on fire escapes, and at least one row in every three vertical rows above the first story of any building shall be so arranged that they can be readily opened from the outside by firemen.

SEC. 263. FIREPROOF DOORS. No openings in party or division walls shall exceed eighty square feet in area, and shall be protected by standard fire doors. Any opening or door-way cut through a wall of brick or stone building, shall have top, bottom and sides of stone, brick or iron, and shall be closed by two sets of fireproof doors of a non-resinous wood core covered with tin or iron subject to the approval of the Inspector of Buildings, separated by the thickness of the wall, hung to rabbeted iron frames, or to iron hinges in brick or stone rabbets; where necessary all sliding or fire doors shall be protected by properly constructed pockets or by substantial frame work securely fastened to prevent obstruction and to maintain the free

working of the door. On such openings as do not exceed fifty square feet in area, if desired, steel rolling doors approved for such openings may be used.

SEC. 264. TRIMMER ARCHES. All fireplaces and chimney breasts, whether intended for ordinary fire place use or not, shall have trimmer arches to support hearths, and the said arches shall be at least twenty-four inches in width measured from the face of the chimney breast, and they shall be constructed of brick, burnt clay or concrete. The length of a trimmer arch shall be not less than the width of the chimney breast. Wood centers under arches shall be removed before plastering the ceiling underneath. If a heater is placed in a fireplace, then the hearth shall be the full width of the heater. All fireplaces in which heaters are placed shall have incombustible mantels. No fireplace shall be closed with a wood fire board.

SEC. 265. CHIMNEYS, FLUES AND FIRE-PLACES. All fireplaces or chimneys in stone or brick walls in any building hereafter erected, except as herein otherwise provided, and any chimneys or flues hereafter altered or repaired, without reference to the purpose for which they may be used, shall have the joints struck smooth on the inside, except when lined on the inside with well burnt clay or terra cotta pipe. No flue shall be nearer than eight inches to the outside of any wall, or nearer than four inches to a party line.

The fire-backs of all fireplaces hereafter erected shall be not less than eight inches in thickness, of solid brick work, nor less than twelve inches if of stone.

When a grate is set in a fireplace, a lining of firebrick, at least two inches in thickness, shall be added to the fire-back unless soapstone, tile or cast iron is used, and filled solidly behind with fireproof material.

The brick work of the smoke flues of all low-pressure boilers, furnaces, bakers ovens, large cooking ranges, large laundry stove, and all flues used for similar purposes shall be at least eight inches in thickness or lined continuously on the inside with well burnt clay or terra cotta pipe, and shall be capped with terra cotta, stone, cast iron, or Portland cement mortar of suitable thickness.

The walls of all high-pressure boiler flues shall be not less than twelve inches, and the inside four inches of such walls shall be firebrick, laid in fire mortar, for a distance of twenty-five feet from the source of heat.

For any now existing brick building where it becomes necessary to provide a smoke flue of larger size than any

flue in the building, such flue may be placed on the outside of the building, but within the lot lines of the same, and be made round in shape and of galvanized sheet metal, not less than one-tenth of an inch in thickness, properly riveted together at all points and carried up to height not less than ten feet above the roof and be properly braced at intervals for its entire length, with flat iron bands secured with expansion bolts to the wall, leaving a free air space of not less than two inches between the outside of the metal flue and the brick wall of the building, and have a clean-cut door at the bottom. This metal flue shall rest on a suitable cast-iron plate at the bottom, supported on a suitable foundation of masonry.

All smoke flues shall extend at least three feet above a flat roof, and at least two feet above the highest points of a peak roof. All with walls laid flat and one bond to every chimney. On dwelling houses and stables, three stories or less in height not less than six of the top courses of a chimney may be laid in Portland cement mortar and the brick work carefully bonded and anchored together in lieu of coping.

No smoke flue shall be less than eight inches on its least dimension nor any furnace or laundry stove flue less than eight by twelve inches, inclusive of the thickness of the lining in each case. Flues for the use of a gas stove or gas grates may be of less dimension within pipe or tile-lined flues, but no such flues shall be less than four inches clear inside diameter of the pipe or tile; this shall not prevent the placing together of not more than four such gas flues within an inclosure of brick work of the thickness hereinbefore stated, including the lining of same.

Ordinary flues in business buildings shall have walls and eight inch jams; flues larger than 150 square inches and less than 500 square inches, shall be surrounded with walls not less than eight inches thick; the walls of such flues above the inlet funnel shall be twelve inches thick for the first fifteen feet around and above such inlet; tops of such chimneys to be at least eight feet above the roof, or five feet above the highest part of the roof within fifty feet of such chimneys. Flues with more than five hundred or less than eight hundred inches in area shall have not less than twelve inch walls for the first thirty-six feet and sixteen inch walls opposite the inlet and ten feet above the roof or seven feet above the highest part of the roof within fifty feet of such chimney.

SEC. 266. FLUES TO BE LEFT CLEAN. All flues in every building shall be properly cleaned and all rubbish removed, and the flues left smooth on the inside on the completion of the building. Every flue shall have but one inlet.

SEC. 267. CHIMNEY SUPPORTS. No chimney shall be started or built upon any floor or beam of wood. In no case shall a chimney be corbeled out more than eight inches from the wall, and in all such cases the corbeling shall consist of at least five courses of brick.

Where chimneys are supported by piers, the piers shall start from the foundation of the same line with the chimney breast, and shall be not less than twelve inches on the face, properly bonded into the walls.

When a chimney is to be cut off below, in whole or in part, it shall be wholly supported by stone, brick, iron or steel. All chimneys which shall be dangerous in any manner whatever, shall be repaired and made safe, or taken down.

SEC. 268. CHIMNEYS AND CUPOLAS. Iron cupola chimneys of foundries shall extend at least ten feet above the highest point of any roof within a radius of fifty feet of such cupola, and be covered on top with a heavy wire netting, and capped with a suitable spark arrester. No wood work shall be placed within two feet of the cupola.

SEC. 269. HOT AIR FLUES, PIPES AND VENT DUCTS. All stone or brick hot air flues and shaft shall be lined with tin, galvanized or burnt clay pipes.

No wood casing, furring or lath shall be placed against or cover any smoke flue or metal pipe used to convey hot air or steam. No smoke pipe shall pass through any floor. No stove pipe shall be placed nearer than eighteen inches to any lath and plaster or board partition, ceiling or any woodwork unless properly protected and then not less than eight inches.

Smoke pipes of laundry stoves, large cooking ranges and of furnaces shall be not less than twenty-four inches from any woodwork, unless they are properly guarded by metal shields; if so guarded stove pipes shall be not less than nine inches distant.

Where smoke pipes pass through a lath and plaster partition they shall be surrounded with a terra cotta or a ventilated metal thimble and brick work to reach from studding to studding and no lath or any other wood to be closer than four inches to said pipe, the brick work and

terra cotta to extend through the entire thickness of the partition.

SEC. 270. SMOKE PIPES THROUGH ROOF.

No smoke pipe shall pass through the roof of any building, unless a special permit be first obtained from the Inspector of Buildings for the same. If a permit is so granted, then the roof through which the smoke pipe passes shall be protected in the following manner.

A galvanized iron ventilated thimble of the following dimensions shall be placed: In case of a stove pipe the diameter of the outside guard shall be not less than twelve inches, and the diameter one-eighth inch larger than the smoke pipe, and for all furnaces or where similar large hot fires are used, the diameter of the outside guard shall be not less than eighteen inches, and the diameter of the inner one twelve inches larger in diameter than pipe. The smoke pipe thimble shall extend from the underside of the ceiling or roof beams to at least nine inches above the roof, and they shall have openings for ventilation at the lower end where the smoke pipes enter, also at the top of the guards above the roofs. Where a smoke pipe of a boiler passes through a roof, the same shall be guarded by a ventilated thimble, same as before specified, thirty-six inches larger than diameter of the smoke pipe of the boiler.

SEC. 271. HOT AIR PIPES IN WALLS. Tin or other metal pipes in brick or stone walls, used or intended to be used to convey heated air, shall be covered with brick or stone at least four inches in thickness.

SEC. 272. HORIZONTAL HOT AIR PIPES. Horizontal hot air pipes shall be placed six inches below the floor beams or ceiling; if the floor beams or ceiling are plastered and protected by metal shield, then the distance shall be not less than three inches.

SEC. 273. DUCTS FOR VENTILATION. In buildings of fireproof construction ventilating shafts passing through floors shall be constructed of fireproof material not less than four inches in thickness.

Any opening in such ducts or shafts shall be protected by automatically closing or self-closing fireproof doors, or by metal louvers riveted into metal frames, and such duct shall open to the outside of the building.

SEC. 274. VENT DUCTS IN PUBLIC SCHOOLS. In the support on construction of such ducts, if placed in a public school room, no wood furring or other inflammable

material shall be nearer than two inches to said flues or ducts, and shall be covered on all sides other than those resting against brick, terra cotta or other incombustible material, with metal lath plastered with at least two heavy coats of mortar, and having at least one-half inch air space between the flues or ducts and the lath and plaster.

SEC. 275. STEAM AND HOT WATER HEATING PIPES. Steam or hot water heating pipes shall not be placed within two inches of any timber or woodwork, unless the timber or woodwork is protected by a metal shield; then the distance shall be not less than one inch.

All steam or hot water heating pipes passing through floors and ceiling or lath and plastered partitions shall be protected by a metal tube passing entirely through floor and ceilings or partitions one inch larger in diameter than the pipe, having a metal cap at the floor, and where they are run in a horizontal direction between a floor and ceiling, a metal shield shall be placed on the underside of the floor over them, and on the sides of wood beams running parallel with said pipes.

All wood boxes or casings inclosing steam or hot water heating pipes and all wood covers to recesses in walls in which steam or hot water heating pipes are placed shall be lined with metal. All pipes or ducts used to convey air warmed by steam or hot water shall be of metal or other fireproof material. All steam and hot water pipe coverings shall consist of fireproof materials only.

SEC. 276. DUCTS FOR PIPES. In buildings other than dwellings all ducts vertical or shafts for pipes, wires and other similar purposes shall be inclosed on all sides with fireproof material and the openings through each floor shall be properly fire-stopped. Any door opening in such duct or shaft shall be provided with a self-closing fireproof door.

SEC. 277. HOT AIR FURNACES. Where hot water, steam or hot air furnaces or other heating appliances of any kind are to be placed in a building in the City of Birmingham, a permit for same must first be obtained from the Inspector of Buildings, and a fee of two dollars (\$2.00) shall be charged for the same.

And it shall be the duty of the Inspector of Buildings to make two inspections, when notified in writing, that said work is ready for inspection.

SEC. 278. INSPECTION. The first inspection shall be for all work that is concealed; the second when the furnace is completed and before being used and shall be the final inspection in case the provision of this ordinance is complied with.

SEC. 279. WHERE ANY CHANGE is made in any such heating apparatus in any building in the City of Birmingham, a permit must be first obtained from the Inspector of Buildings, and a fee of one dollar (\$1.00) shall be charged for the same. And it shall be the duty of the Inspector of Buildings to make one inspection, when notified in writing that said work is ready for inspection.

Where concealed work is done under this provision, the notice to the Inspector of Buildings must be given before the work is covered up. In cases where more inspection is necessary on account of failure of compliance with this ordinance, or for any other reason than as hereinbefore expressly provided, extra inspection shall be applied for by the person having charge or control of the work, and for each extra inspection a fee of one dollar (\$1.00) shall be paid upon the application for the inspection being made.

SEC. 280. HOT AIR PIPES. Where hot air pipes are inclosed in wooden partitions they shall be standard bright tin, tight joints without soldering them, and shall be securely covered with asbestos at least one-eighth of an inch thick, wrapped with wire and securely fastened so as not to slip down or otherwise, if approved, and then to be securely fastened to the woodwork with a metal fastening not over two (2) feet apart, and said pipe to be kept at least one-half inch from all unprotected woodwork; or said pipe can be double and the space between the two metal pipes on all sides be at least three-eighths of an inch apart in the clear, no single or double pipe shall be used jointly.

Such pipes are to be made with air tight joints, without soldering them, and shall be securely fastened to the partitions at intervals of every two feet and at least one-half inch from any unprotected woodwork.

SEC. 281. HEATING FURNACES AND BOILERS. A brick-set boiler shall not be placed on any wood or combustible floor or beams. Wood or combustible floors and beams under and not less than three feet in front and one foot on the side of all portable boilers shall be well protected by a brick foundation of three courses of brick-

work, well laid in mortar on sheet-iron; the middle course of brick to be laid crosswise, and with ventilating spaces in or between the bricks of said middle course; the said sheet iron shall extend at least twenty-four inches outside of the foundation at the sides and front. A cast iron ash pan of suitable thickness shall be placed under the boiler, and shall have a flange, turned up in front and on the sides, four inches high, said pan shall be in width not less than the base of the boiler, and shall extend at least two feet in front of it. If a boiler is supported on a cast-iron base with the bottom of the required thickness for an ash pan, and is placed on bearing lines of brick in the same manner as specified for an ash pan, then an ash pan shall be placed in front of the said base and shall not be required to extend under it.

All lath and plaster and wood ceilings and beams, over and to a distance of not less than four feet above or in front of all boilers, shall be shielded with metal.

SEC. 282. CEILINGS. Where smooth ceilings are to be protected, the metal to be applied shall have an air space of not less than one-quarter of an inch between the metal and ceiling. Where beams are exposed, the metal to be applied shall follow the contour of the beams. The distance from the top of the boiler to said shield shall be not less than twelve inches, and the smoke pipe leading therefrom shall be not less than twenty-four inches.

No combustible partition shall be within four feet of the sides and back and six feet from the front of any boiler, unless said partition shall be covered with metal to a height of at least three feet above the floor, and shall extend from the end or back of the boiler to at least five feet in front of it; then the distance shall be not less than two feet from the sides and five feet from the front of the boiler.

SEC. 283. ALL BRICK HOT AIR FURNACES shall have two covers, with an air space of at least four inches between them; the inner cover of the hot air chamber shall be either a brick arch to two courses of brick laid on galvanized iron or tin, supported on iron bars; the outside cover, which is the top of the furnace, shall be made of brick or metal supported on iron bars, and so constructed as to be perfectly tight, and shall be not less than twelve inches below any incombustible ceiling or floor beams, and well protected. The walls of the furnace shall be built hollow in the following manner. One inner and one outer

wall, each four inches in thickness, properly bonded together with an air space of not less than three inches between them.

SEC. 284. FURNACES SHALL be built at least twelve inches from all woodwork. The cold air boxes of all hot-air furnaces shall be made of metal brick or other incombustible material.

All hot-air furnaces and their smoke pipes shall be placed at least two feet from any wood or incombustible partition or ceiling, unless the partitions and ceilings are properly protected by a suspended galvanized metal shield, when the distance shall be not less than one foot. No smoke pipe shall connect to any flue that does not conform to this Code.

Wood floors under all portable furnaces shall be protected by three courses of brick work, well laid in mortar and galvanized sheet iron, the middle course to be laid crosswise with ventilating spaces, within or between the bricks of said middle course. Said brick work shall extend at least two feet beyond the furnace in front of the ash pan.

SEC. 285. REGISTERS. Registers located over a brick furnace shall be supported by a brick shaft built up from the cover of the hot-air chamber; said shaft shall be lined with a metal pipe, and all wood beams shall be trimmed away not less than four inches from it. Where a register is placed on any woodwork in connection with a metal pipe or duct, at the end of the said pipe or duct shall be flanged over on the woodwork under it.

SEC. 286. RANGES AND STOVES. No kitchen or heating stove shall be placed nearer to any combustible partition than twelve inches, unless the said partition shall be shielded with metal from the floor to the height of not less than three feet higher than the range; if the range is within six inches of the partition, then the studs shall be cut away and framed three feet higher and one foot wider than the range, and filled into the face of the said stud partition with brick or fireproof blocks, and plastered thereon.

All ranges on wood or combustible floors and beams that are not supported on legs, and have ash pans three inches or more above their base, shall be set on suitable brick foundations, consisting of not less than two courses of brick well laid in mortar on galvanized sheet iron, except small ranges, such as are used in apartment houses and dwellings, that have ash pans three inches or more

above their base, shall be placed on at least one course of brick work on galvanized sheet iron.

SEC. 287. NO RANGES SHALL BE PLACED AGAINST WOOD FURRED WALL. All lath and plaster or wood ceilings over all large ranges and ranges in hotels and restaurants shall be guarded by metal hoods placed at least nine inches below the ceiling.

A ventilating pipe connected with a hood over a range shall be an individual pipe (having no connection with any other pipe,) and shall be not less than nine inches from wood or lath and plaster work which shall be shielded with metal. The pipe shall go either outside of the building and discharge at least four feet above the roof, or be connected with a suitable brick flue or heavy iron pipe, which shall be used exclusively for the ventilating pipe of the range.

Laundry stove on wood or combustible floor shall have a course of bricks, laid on metal, on the floor under and extended twenty-four inches on all sides of them.

A metal shield shall be placed under and twelve inches in front of the ash pan of all stoves that are placed on wood floors. All low gas stoves shall be placed on iron stands, or the burners shall be at least six inches above the base of the stoves, and the metal guard placed four inches below the burners, and all wood work under them shall be covered with metal. Gas connections to such stoves shall be made by metal pipes, unless there is no valve on the gas stove. All receptacles for ashes shall be of galvanized iron, brick or other incombustible material.

SEC. 288. DRYING ROOMS. All walls, ceilings and partitions inclosing drying rooms which are raised to a temperature of 120 degrees or higher, shall be made of fireproof material.

SEC. 289. SMOKE HOUSES. All smoke houses shall be of fireproof construction with brick walls, iron doors and brick or metal roof. An iron guard shall be placed over and not less than three feet above the fire and the hanging rail shall be of iron, and iron grating shall be placed under the first row of hanging rails and be not less than eight feet above the floor of the fire pit.

The walls of all smoke houses shall be built at least three feet higher than the roof of the building in which they are located and shall be not less than twelve inches in thickness and be coped with stone or its equivalent.

SEC. 290. BAKE OVENS shall rest on solid foundations or metal beams or columns, the sides and ends shall

be at least two feet from any wood work, and the crown arch at least four feet from the ceilings that have wood joists. The hearth in front of bake ovens shall extend at least three and one-half feet beyond the face of the said ovens.

SEC. 291. GAS BRACKETS. All gas brackets shall be placed at least three feet below any ceiling or woodwork, unless the same is properly protected by a shield, in which case the distance shall not be less than eighteen inches.

No swinging or folding gas bracket shall be placed against or near any such partition or woodwork, and all swinging gas brackets shall be provided with stops to prevent them from swinging against woodwork.

No gas bracket in any lath and plaster partition or woodwork shall not be less than five inches in length, measured from the burner to the plaster surface of woodwork.

Gas lights placed near window curtains or any other combustible material shall be guarded by globes or wire cages.

SEC. 292. APARTMENT HOUSES. Every non-fireproof building hereafter erected or altered for use as an apartment house, or a house three stories and basement in height, or having a basement and two stories in height above a cellar, but in no case exceeding forty-five feet in height, shall have the basement story and cellar constructed fireproof, and all rooms used as stores or similar purposes underneath an apartment house or hotel shall have the walls and ceilings constructed of such fireproof materials as may be approved by the Inspector of Buildings. No such non-fireproof building shall exceed seventy-five feet in width. Every building hereafter erected or altered for use as an apartment house or exceeding forty-five feet in height shall be constructed fireproof in accordance with the requirements of the Code for fireproof buildings.

SEC. 293. CELLAR STAIRS. The stairs from the cellar or lowest story to the floor next above, when placed within an apartment house shall be located when practicable to the rear of the staircase leading from the first story to upper stories, and in all cases be inclosed with brick, stone, or concrete walls, and such stairway shall be provided with self-closing fireproof doors at the top and bottom of said flight of stairs. When such stairway is placed underneath the first story staircase, it shall be constructed fireproof and be roofed over with fireproof material, and

be also inclosed with brick walls, with self-closing fireproof doors at the top and bottom of said flight of stairs.

When the stairs from the first story to the cellar or lowest story are located in an open court the door leading thereto from the first story, and the strings and railing of such outside stairs shall be of iron, and if the stairs be inclosed from the weather, incombustible material only shall be used for that purpose.

SEC. 294. HALLWAY INCLOSURES AND STAIRCASES IN APARTMENT HOUSES. In all non-fireproof apartment houses hereafter erected three stories and basement in height, but not exceeding forty-five feet in height, and occupied or arranged to be occupied by more than two families on any floor the staircase halls shall be inclosed with brick walls or other fireproof material and the said hall inclosures shall have a connecting hallway in the first story and extend to the street, inclosed with suitable walls of brick, or such other fireproof materials, including ceiling, as may be approved by the Inspector of Buildings.

In fireproof apartment houses hereafter erected the stair halls and hallways leading to the street shall be inclosed in brick walls, or other fireproof materials, and in other respects be constructed as required by this Code for fireproof construction. Eight inch brick walls built with Portland cement mortar not exceeding fifty feet in their vertical measurement, may inclose said halls and stairs, and be used as bearing walls where the distance between the outside bearing walls does not exceed thirty-three feet and the area between the said brick inclosure walls does not exceed one hundred and eighty superficial feet. At least one flight of hall stairs in each of said buildings shall extend to the roof, and there be inclosed in a bulkhead. The bulkhead door shall not at any time be locked with a key, but it may be fastened on the inside by movable bolts or hooks. Whenever the walls inclosing the entrance halls of any apartment hereafter erected, support beams or girders carrying a brick wall above, the said walls shall not be less than twelve inches thick, laid in Portland cement mortar.

SEC. 295. CLOSET PROHIBITED UNDER FIRST STORY STAIRCASE. In non-fireproof buildings no closet shall be constructed underneath the staircase of any story, but the space thereunder shall be left entirely open and kept free from incumbrance; but this shall not prohibit the inclosing without openings the under portion of the first story staircases from the foot of the same to a

point where the height from the floor line to the soffit of the staircase shall not exceed five feet.

SEC. 296. PERCENTAGE OF LOT OCCUPIED.

No apartment house hereafter erected shall occupy more than ninety per centum of a corner lot, or more than seventy per centum of any other lot; provided, that the space occupied by the outside fire escapes, projecting not more than four feet, shall not be deemed a part of the lot occupied.

For the purpose of this section, the measurements shall be taken at the ground level. Except that where there is an alley in the rear and any such building has a store on the first story, and that story is or is intended to be occupied for business purposes only, the measurements as to percentage of lot occupied may be taken at the level of the second story floor beams.

SEC. 297. YARDS. Behind every apartment house four stories in height hereafter erected on an inside lot there shall be a yard, not less than ten feet in depth, extending across the entire width of the lot and at every point open from the ground to the sky unobstructed, except that fire escapes or inclosed outside stairs may project not over four feet from the rear line of the house.

Said yards shall be increased in depth six inches for every additional story in height of the building; and may be decreased in depth one foot for every story in height of the building less than four stories.

The depth of the yard behind every apartment house hereafter erected upon a corner lot shall be not less than five feet in every part for the full width of the lot, and such depth need not be increased when the building exceeds four stories in height, nor shall it be decreased in depth when the building is less than four stories in height, except that

When an apartment house is hereafter erected on a corner lot and when any such building has a store on the first story, the said yard or open space unencumbered except by fire escapes projecting not more than four feet, may start at the level of the second story floor beams, provided there is an alley in the rear. When a corner lot is more than seventy-five feet in width the yard, or that portion in excess of seventy-five feet shall conform to the provisions of this Section for inside lots. Wherever an apartment house hereafter erected upon a lot which runs through from one street to another street and said lot is not less than one hundred and twenty feet nor more than

one hundred and fifty feet in depth, there shall be a yard space through the center of the lot midway between the two stories, which space shall extend across the full width of the lot, and shall not be less than twelve feet in depth from wall to wall; and such yard space may start at the level of the second story floor beams. Where such lot is over one hundred and fifty feet in depth, such yard space shall be proportionately increased in depth, and shall be left through the center of the lot midway between the two streets, and shall extend across the entire width of the lot.

Where an apartment house hereafter is erected and is situated on a lot formed by the intersection of two streets at an acute angle, the yard of the said house need not extend across the entire width of the lot, provided that it extends to a point in line with the middle line of the block.

SEC. 298. REAR APARTMENT HOUSES. No separate apartment house shall hereafter be erected upon the rear of a lot fifty feet or less in width where there is an apartment house on the front of the said lot; nor upon the front of any such lot upon the rear of which there is such a house.

SEC. 299. BUILDINGS ON SAME LOT WITH APARTMENT HOUSES. If a building is hereafter placed on the same lot with an apartment house, the space between the said building shall always be of such size and arranged in such manner as is prescribed for yards in rear of apartment houses.

And no building of any kind shall be hereafter placed upon the same lot with an apartment house so as to decrease the minimum size of courts or yards as hereinbefore prescribed.

If any apartment house is hereafter erected upon any lot upon which there is already another building, it shall comply with all the provisions of this section, and, in addition, the space between the said building and the said apartment house shall be of such size and arranged in such manner as is prescribed hereinbefore for inner courts, the height of the highest building on the lot to regulate the dimensions.

SEC. 300. ROOMS, LIGHTING AND VENTILATION OF. In every apartment, boarding or lodging house hereafter erected every room, except water closet compartment, and bath rooms, shall have at least one window opening directly upon the street or upon a yard or court.

SEC. 301. WINDOWS IN ROOMS. In every apartment house hereafter erected the total window area in each room, except water closet compartments and bath rooms, shall be at least one tenth of the superficial area of the room.

SEC. 302. WINDOWS. And the top of at least one window shall be not less than seven feet six inches above the floor, and the upper half of it shall be made so as to open the full width.

No such window shall be less than twelve square feet in area between the stop beads.

SEC. 303. WINDOWS IN WATER CLOSET COMPARTMENTS AND BATH ROOMS. In every apartment house hereafter erected the total window area in a water closet compartment or bath room shall be not less than three square feet for each. And no such window shall be less than one foot in width measured between stop beads.

SEC. 304. ROOMS, SIZE OF. In every apartment house, hereafter erected all rooms, except water-closet compartments and bath rooms, shall be of the following minimum sizes:

In each apartment that shall be at least one room containing not less than one hundred and twenty square feet of floor area; and each other room shall contain at least seventy square feet of floor area. Each room shall be in every part not less than nine feet high from the finished floor to the finished ceiling, provided, that an attic room need be nine feet high in but one half its area.

SEC. 305. ALCOVES. Alcove rooms must conform to all the requirements of other rooms.

SEC. 306. PUBLIC HALLWAYS. In every apartment house hereafter erected every public hallway, that is, a corridor not within an apartment shall have at least one window opening directly upon the street or upon a yard or court.

One at least of the windows provided to light each public hallway or part thereof, shall be at least two feet six inches wide and five feet high measured between stop beams.

Any part of a hallway which is shut off from any other part of said hallway by a door or doors, shall be deemed a separate hallway or separate hall within the meaning of this section.

SEC. 307. STAIR HALLWAY WINDOWS. In every apartment house hereafter erected the aggregate area of windows to light or ventilate stair halls, that is, the public hallways which include stairs, stair landings and other portions of the hallways through which it is necessary to pass in going between the entrance floor and the roof, shall be at least eighteen square feet for each floor.

A sash door shall be deemed the equivalent of a window in public hallways and stair halls, provided, that such door contains that amount of glazed surface prescribed for such windows.

SEC. 308. PRIVACY. In every apartment of three or more rooms in an apartment house hereafter erected, access to every living room and bedroom and to at least one water-closet compartment shall be had without passing through any bedroom.

SEC. 309. EXISTING BUILDINGS. No now existing apartment house shall hereafter be enlarged, or its lot be diminished, so that the house shall occupy more than the percentage of lot allowed by this Code for similar new houses.

No now existing apartment house shall hereafter be enlarged or its lot diminished, so that the yard shall be less than specified in this Code for similar new houses.

And such yard shall be at every point open from the ground to the sky, except that fire escape or uninclosed outside stairs may project not over four feet from the rear line of the house. Any additional room or hall that is hereafter constructed or created in a now existing apartment house shall comply in all respects with the provisions of this Code for new houses.

SEC. 310. LIGHTS IN PUBLIC HALLWAYS. In every apartment house a proper light shall be provided to be kept burning by the owner in the public hallways, near the stairs, upon the entrance floor and upon the second floor above the entrance floor of said house, every night from sunset to sunrise throughout the year. And upon all other floors of the said house from sunset until ten o'clock in the evening.

SEC. 311. AREA FOR VENT SHAFTS. Every vent shaft hereafter constructed in an apartment house four stories and basement in height, shall be at least twelve square feet in area, and the least dimensions of such shaft shall be not less than three feet. And if the building be above four stories and basement in height such shaft shall

be throughout its entire height be increased in area two square feet for each additional story in height. And for each story in height less than four stories and basement such shaft may be decreased in area one square foot. A vent shaft may be inclosed on all four sides, but shall not be roofed or covered over in any way.

SEC. 312. BOTTOMS OF SHAFTS, COURTS, AREAS AND YARDS. In every apartment house hereafter erected the bottom of all shafts, courts, areas and yards, which extend to the basement for light and ventilation of living rooms, shall be six inches below the floor level of the part occupied or intended to be occupied. All shafts, courts, areas and yards shall be properly graded and drained, and shall be properly connected with the street sewer so that all water may pass freely into it.

SEC. 313. BASEMENTS AND CELLARS. In apartment houses hereafter erected no room in the cellar or basement shall be constructed, altered, converted or occupied for living purposes, unless all of the following conditions are complied with:

(1) Such room shall be at least eight feet high in every part from the floor to the ceiling; provided that in buildings already erected and not now used as apartment houses, but hereafter altered or converted to such use, such room shall be not less than seven feet high in every part.

(2) Ceiling of such room shall be at least two feet and six inches above the surface of the street or ground outside of or adjoining the same.

(3) There shall be appurtenant to such room the use of a separate water closet, constructed and arranged as required.

(4) Such room shall have a window or windows opening upon the street, or upon a yard or court. The total area of windows in such room shall be at least one-eighth of the superficial area of the room, and one half of the sash shall be made to open the full width, and the top of each shall be within six inches of the ceiling.

(5) All walls surrounding such room shall be damp-proof.

(6) The floor of such room shall be damp-proof and water-proof.

Every apartment house hereafter erected shall have all walls below the ground level and all cellars or lower floors damp-proof and water-proof.

SEC. 314. DAMP-PROOFING. When necessary to make such walls and floors damp-proof and water-proof, the damp-proofing and water-proofing shall run through the wall and up the same as high as two feet above the ground level, and shall be continued throughout the floor.

And the said cellar or lower floor shall be properly constructed so as to prevent dampness or water from entering.

SEC. 315. STORAGE OF DANGEROUS MATERIALS. No apartment house, or any part thereof, shall be used as a place of storage for any article, or material dangerous to life or health, nor for the storage of feed, hay, straw, excelsior or cotton, nor for the storage or handling of rags, except under such conditions as may be prescribed by the Fire Department, under authority of a written permit issued by said department.

SEC. 316. FIRE ESCAPES. In all apartment houses, and apartments not containing any room fronting upon the street or yard shall have a fire escape in a court, projecting not more than four feet from the wall of the house, constructed in accordance with the requirements of this Code.

In any such buildings each and every apartment therein above the first story shall open directly to an outside fire escape from at least one room other than a bath room or water closet compartment.

SEC. 316½. WATER CLOSETS AND ACCOMMODATIONS. In every apartment house hereafter erected there shall be a separate water-closet in a separate compartment within each apartment. Provided that where there are apartments consisting of but two rooms, there shall be at least one water-closet for every two apartments, every tenement house hereafter erected shall be provided with as many water-closets, or other similar receptacles as the Inspector of Buildings or the Department of Health may require, but in no case shall there be less than one for every fifteen occupants.

Nothing in this Section in regard to the separation of water-closet compartments from each other shall apply to a general toilet room hereafter placed in any apartment house or tenement house, provided such water-closets are supplemental to the water-closet accommodations re-

quired by this Section for the use of the occupants of any said house.

All water-closet compartments in every apartment house or tenement house hereafter erected shall have a window opening upon the street or yard or upon a court or vent shaft.

Every water-closet compartment shall be provided with proper means of lighting the same at night. If fixtures for gas or electricity are not provided in said compartment, then the door of said compartment shall be provided with obscured glass panels, or with an obscured glass transom, not less in area than four square feet.

The floor of every water-closet compartment shall be made water-proof with asphalt, tile, stone, Portland cement concrete, or some other sanitary water-proof material; and such water-proofing shall extend at least six inches above the floor, so that the said floor can be washed or flushed out without leaking.

No drip trays shall be permitted.

No water-closet fixtures shall be inclosed with any woodwork.

SEC. 317. CONCRETE HOLLOW OR SOLID BLOCKS. Concrete hollow blocks made in accordance with the following specifications, and meeting the requirements thereof, may be used in building construction, subject to the usual form and approval required of the other materials of construction by the Building Inspector.

The cement used in making sand blocks shall be Portland cement, capable of passing requirements as set forth in the "Standard Specifications for Cement" by the American Society for testing materials.

The sand used shall be suitable siliceous material, passing the one-fourth inch mesh sieve, clean, gritty and free from impurities.

SEC. 318. STONE OR COURSE AGGREGATE. This material shall be clean broken stone, free from dust, or clean screen gravel passing the three-quarter inch and refused by the one-quarter inch mesh sieve.

SEC. 319. UNIT OF MEASUREMENT. The barrel of Portland cement shall weigh 380 pounds net, either in barrels or subdivisions thereof, made up of cloth or paper bags, and a cubic foot of cement shall be called not to exceed one hundred pounds of the equivalent of 3.8 cubic feet per barrel. Cement shall be gauged or measured either in the original package, as received from the manufacturer, or may be weighed and so proportioned,

but under no circumstances shall it be measured loose in bulk.

SEC. 320. PROPORTIONS. For exposed exterior or bearing walls. (a) Concrete hollow blocks, machine made, using a semi-wet concrete or mortar, shall contain one (1) part cement to not exceed three (3) parts sand and four (4) parts stone, of character and size before stipulated. When the stone be omitted, the proportion of sand shall not be increased, unless it can be demonstrated that the percentage of voids and tests of absorption and strength allow in each case of greater proportions, with equally as good results. (b) When said blocks are made of slush concrete, in individual molds and allowed to harden undisturbed in the same before removal, the proportion may be one (1) part cement not to exceed three (3) parts sand, and five (5) parts stone, but in this case also, if the stone be omitted, the proportion of sand shall not be increased.

SEC. 321. MIXING. Thorough and vigorous mixing is of the utmost importance and must be done well. (a) Hand Mixing. The cement and sand in correct proportion shall first be perfectly mixed dry, the water shall then be added carefully and slowly in the proper proportions and thoroughly worked into and throughout the resultant mortar. The moistened gravel or broken stone shall be then added, either by spreading same equally over the mortar, or spreading the mortar uniformly over the stones, and then the whole mass shall be vigorously mixed together until the course aggregate is thoroughly incorporated with and distributed throughout the mortar.

SEC. 322. (b) MECHANICAL MIXING. Preference shall be given to mechanical mixers of suitable design and adapted to the particular work required of them; the sand and cement, or the sand and cement and moistened stone shall, however, be first thoroughly mixed before the addition of water, and then continued until the water is uniformly distributed or incorporated with the mortar or concrete. Provided, however, that when making wet or slush concrete (such as will quake or flow) this procedure may be varied with the consent of the Inspector of Buildings.

SEC. 323. MOLDING. Due care shall be used to secure density and uniformity in the blocks by tamping or other suitable means of compression. Tamped blocks shall not be finished by simply striking off with a straight

edge, but after striking off, the top surfaces shall be troweled or otherwise finished to secure density and a sharp and true arris. Every precaution shall be taken to prevent the drying out of the blocks during their initial set and first hardening. A sufficiency of water shall first be used in the mixing to perfect the crystalization of the cement, and after molding the blocks shall be carefully protected from wind currents, sunlight, dry heat or freezing, for at least five (5) days, during which time, additional moisture shall be supplied by approved methods, and occasionally thereafter until ready for use.

SEC. 324. AGEING. Concrete hollow blocks in which ratio of cement to sand be one-third, one part cement to three parts sand, shall not be used in the construction of any building in the City of Birmingham, Alabama, until they have attained the age of least three (3) weeks. Concrete hollow blocks in which the ratio of cement to sand to be one-half ($\frac{1}{2}$) (one part cement to two parts sand) may be used in the construction at the age of two weeks, with the special consent of the Inspector of Buildings, and the architect or engineer in charge.

Special blocks of rich composition, required for closures, may be used at the age of seven (7) days with the special consent of the same authorities, the time herein named is conditional, however, upon maintaining proper conditions of exposure during the curing period.

SEC. 325. MARKING. All concrete blocks shall be marked for purposes of identification, showing the name of the manufacturer or brand, date (day, month and year) made, and composition or proportion used. as for example, 1-3-5 meaning one cement, three sand and five stone.

SEC. 326. THICKNESS OF WALLS. The thickness of walls for any building when hollow blocks are used shall be same as required by law for brick walls except dwellings may have top story eight (8) inches thick. For curtain walls or partition walls the requirements shall be the same as in the use of hollow tile, terra cotta or plaster blocks.

SEC. 327. PARTY WALLS. Hollow concrete blocks shall not be permitted in the construction of party walls, except when filled solid with rich Portland cement concrete and joints laid in Portland cement mortar.

SEC. 328. WALLS LAYING OF. Where the face only is of hollow concrete blocks and backing is of brick,

the facing of hollow blocks must be strongly bonded to the brick, either with headers projecting four (4) inches into the brickwork, every fourth course being as heading course, or with approved ties; no brick backing to be less than eight (8) inches. Where the walls are made entirely of concrete blocks, but where said blocks have not the same width as the walls, every fifth course shall extend through the wall, forming a secure bond, when not otherwise sufficiently bonded. In all walls, where blocks are used, it shall be left to the discretion of the Inspector of Buildings to use lime mortar, native cement mortar, or a mixture of lime and cement mortar.

SEC. 329. GIRDERS OR JOISTS. Wherever girders or joists rest upon walls so that there is a concentrated load on the blocks of over two (2) tons, the blocks supporting the girders or joists must be made solid for at least eight inches from the inside face. Where such concentrated load shall exceed five tons, the blocks for at least three courses below, and for distance extending at least eighteen inches on each side of said girder, shall be made solid for at least eight inches from the inside surface.

Wherever walls are decreased in thickness the top course of the thicker wall shall afford a full solid bearing for the webs or walls of the course of the blocks above and in all cases where hollow blocks are used in buildings of these classes, there must be next under all carrying joists or girders two (2) course of solid blocks, allowing at the same time at intervals of every twenty (20) feet flues for ventilation from one story to the next.

SEC. 330. LIMIT OF LOADING. No wall nor any part thereof, composed of concrete hollow blocks, shall be loaded to an excess of eight (8) tons per superficial foot of the area of such blocks, including the weight of the wall, and no blocks shall be used in the bearing walls that have an average crushing strength of less than 1,000 pounds per square inch of area, at the age of twenty-eight (28) days; no deduction to be made in figuring the area for the hollow spaces.

SEC. 331. SILLS AND LINTELS. Concrete sills and lintels shall be reinforced by iron or steel rods, in a manner satisfactory to the Inspector of Buildings, and the architect or engineer in charge and any lintels spanning over four feet six inches, shall rest on blocks solid for at least eight (8) inches from the face next to the opening and for at least three courses below the bottom of the lintels.

SEC. 332. HOLLOW SPACE. The hollow space in the building blocks used in bearing walls, shall not exceed the percentage given in the following table for different height walls, and in no case shall the walls or webs of the blocks be less in thickness than one-fourth their height. The figures given in the table represent the percentage of such hollow space for different height walls, and no blocks over eight (8) inches thick:

Stories	1st	2nd	3rd
1 & 2	25	25	
3 & 4	25	25	25

No concrete block building shall be over three stories in height.

SEC. 333. APPLICATION FOR USE. Before any such material be used in building, an application for its use, and for the test of the same, must be filed with the Inspector of Buildings.

A description of the material and brief outlines of its manufacture and proportions used must be embodied in the application. The name of the firm or corporation and the responsible officers thereof shall also be given, and changes in the same thereafter promptly reported.

SEC. 334. PRELIMINARY TESTS. No hollow concrete blocks shall be used in the construction of any building, unless the maker of said blocks has submitted his products to the full test required therein, and placed on file with the Inspector of Buildings, or other duly authorized official, a certificate from a reliable testing laboratory, showing that representative samples have been tested, and successfully passed all the requirements thereof, and giving in detail the results of the tests made.

No concrete blocks shall be used in the construction of any building until they have been inspected and approved, or if required until representative samples be tested and found satisfactory. The results of all tests made, whether satisfactory or not, shall be placed on file in the office of the Inspector of Buildings. These records shall be open to inspection, upon application, but need not necessarily be published.

SEC. 335. ADDITIONAL TESTS. The manufacturer and use of such hollow concrete blocks, or either of them, shall at any and all times have made such tests of the cement used in making such blocks or each of these, at their own expense, and under the supervision of the Inspector of Buildings, as he shall require. In case the result of the tests made under this condition should show

that the standard of these regulations is not maintained, the certificate of approval, issued to the manufacturer of said blocks will at once be suspended or revoked.

SEC. 336. CERTIFICATE OF APPROVAL. Following the application called for in clause above and upon the satisfactory conclusion of the tests called for, a certificate of approval shall be issued to the maker of the blocks by the Inspector of Buildings. The certificate of approval will not remain in force for more than four months unless there be filed with the Inspector of Buildings, at least once every month following a certificate from some reliable physical testing laboratory showing that the average of at least three (3) specimens tested for compression, and at least three (3) specimens tested for transverse strength comply with the requirements herein set forth. The said samples to be selected by the Inspector of Buildings, or by the laboratory, from blocks actually going into construction work.

SEC. 337. TEST REQUIREMENTS. Concrete hollow blocks must be subject to the following tests: transverse, compression and absorption, and may be subjected to the freezing and fire tests, but the expense of conducting the freezing and fire tests will not be imposed upon the manufacturer of said blocks.

The tests samples must represent the ordinary commercial product of the regular size and shape used in construction.

The samples may be tested as soon as desired by the applicant, but in no case later than sixty days after the manufacturing.

SEC. 338. TRANSVERSE TEST. The modulus of rupture for concrete blocks at twenty-eight (28) days must average one hundred and fifty pounds and must not fall below one hundred in any case.

SEC. 339. COMPRESSION TEST. The ultimate compression strength at twenty-eight (28) days must average one thousand (1,000) pounds per square inch, and must not fall below seven hundred in any case.

SEC. 340. ABSORPTION TEST The percentage of absorption (being the weight of the water absorbed, divided by the weight of the dry sample), must not average higher than fifteen per cent., and must not exceed eighteen per cent. in any case.

SEC 340½. CONDEMMED BLOCKS. Any and all blocks samples of which, on being tested under the

direction of the Inspector of Buildings, fail to stand at twenty-eight (28) days, the test required by this regulation shall be marked condemned by the manufacturer, and shall not be used except by special permission of the Inspector of Buildings.

SEC. 341. SPECIFICATIONS GOVERNING METHODS OF TESTING CONCRETE HOLLOW BLOCKS.

All tests required for approval shall be made in some laboratory of recognized standing under the supervision of the Engineer or Inspector of Buildings, or the architect or engineer in charge or all of these. The manufacturer may be present or represented during said tests if he so desires. Approval tests are made at the expense of the applicant.

For the purpose of the tests at least twelve sample or test pieces must be provided. Such samples must represent the ordinary commercial product and may be selected from stock by the Inspector of Buildings.

In cases where the material is made and used in special shapes or forms, too large for testing in ordinary machines, smaller sized specimens, shall be used as may be directed.

In addition to the tests required for approval, the weight per cubic foot of the material must also be obtained and recorded.

Tests shall be made in series of at least three (3), except that in the fire tests a series of two (four samples) are sufficient.

Transverse tests shall be made on full samples.

Half samples may be used for the crushing, freezing and fire test.

The remaining samples are kept in reserve, in case duplicate or confirmatory tests may be required. All samples must be marked for identification and comparison.

The transverse test shall be made as follows: the samples shall be placed flatwise on two rounded knife edge bearings set parallel seven inches apart.

A load is then applied on top, midway between the supports, and transmitted through a similar rounded knife edge, until the sample is ruptured.

The modulus of rupture shall then be determined by multiplying the total breaking load in pounds by twenty-one (three times the distance between supports in inches,) and then dividing the result thus obtained by twice the product of the width in inches by the square of the depth in inches.

R equals $\frac{3 w l}{2 b d^2}$

$\frac{3 w l}{2 b d^2}$

No allowance should be made in figuring the modulus of rupture for the hollow spaces.

The compression test shall be made as follows:

Samples must be whole blocks or cuts from blocks so as to contain a full web section. The sample must be carefully measured, then bedded flatwise in plaster of paris to secure a uniform bearing in the testing machine and crushed. The total breaking load is then divided by the area in compression in square inches. No deduction to be made for hollow spaces; the area will be considered as the product of the width by the length.

The absorption test shall be made as follows:

The sample is first thoroughly dried to a constant weight at not to exceed 212 degrees Fahrenheit. The weight must be carefully recorded. It is then placed in a pan or tray of water, face downward, immersing to a depth of at least two inches.

It is again carefully weighted at the following periods:

Thirty minutes, four hours and forty-eight, respectively, from the time of immersion, being replaced in the water in each case as soon as the weight is taken. Its compression strength while still wet, is then determined at the end of the forty-eight hour period, in the manner specified in section above.

The freezing test shall be made as follows: The sample is immersed as described in section above for at least four hours, and then weighed. It is then placed in a freezing mixture or a refrigerator, or otherwise subjected to a temperature of less than fifteen degrees Fahrenheit. for at least twelve hours. It is then removed and placed in water, where it must remain for at least one hour, the temperature of which is at least 150 degrees Fahrenheit.

This operation is repeated ten (10) times, after which the sample is again weighed, while still wet from the last thawing. Its crushing strength should then be determined as called for.

The fire test is made as follows: Two samples are placed in a cold furnace in which the temperature is gradually raised to 1,700 degrees Fahrenheit. The test piece must be subjected to this temperature for at least thirty minutes. One of the samples is then plunged in cold water (about fifty degrees to sixty degrees Fahrenheit), and the results noted. The second sample is permitted to cool gradually in air, and the results noted.

The following requirements must be met to secure an acceptance of the materials. The modulus of rupture for concrete blocks at twenty-eight (28) days old must

average one hundred and fifty, and must not fall below one hundred in any case. The ultimate compressive strength of twenty-eight days average one thousand pounds per square inch and must not fall below seven hundred in any case. The percentage of absorption (being the weight of water absorbed divided by the weight of the dry sample), must not average higher than fifteen per cent. and must not exceed eighteen (18) per cent. in any case. The reduction of compressive strength must not be more than $33\frac{1}{3}$ per cent. except that when the lower figure is still above one thousand pounds per square inch, the loss may be neglected. The freezing and thawing process must not cause a loss in weight greater than 10 per cent. nor a loss in strength of more than $33\frac{1}{3}$ per cent., except when the lower figure is still above the one thousand pounds per square inch, the loss in strength may be neglected. The fire test must not cause the material to disintegrate. Each manufacturer of hollow or solid cement blocks shall be licensed and shall also give a security bond payable to the City of Birmingham to the amount of \$1,000.00 that he at any time can and will furnish the Inspector of Buildings an accurate description of the material and proportions used and embodied in the manufacture of his blocks and that a compression test will be submitted to the Inspector of Buildings at least once every ninety days when the plant is running, or as much oftener as should be deemed necessary by the Inspector of Buildings.

All such tests must be made in some laboratory or manufacturing plant, having suitable machines of recognized standard for making such tests. Such tests shall, be at the expense of the manufacturer, and the result of such tests, whether satisfactory or not, shall be filed in the office of the Inspector of Buildings. When such tests do not come up to the requirements of this ordinance all blocks on hand and manufactured prior to this last test, and as far back as the last previous test, shall be condemned and cannot be used, except with the special permission of the Inspector of Buildings.

In case the result of the test made under the foregoing conditions should show that the standard of these regulations is not maintained the approval of the City for the manufacture of said blocks will at once be revoked and the license cancelled and bonds forfeited.

Be it further ordained that the foregoing regulations are intended to apply to the manufacture and the use of all cement or concrete blocks within the corporate limits of

Birmingham, Alabama, whether the same are manufactured within or outside of said City.

PUBLIC BUILDINGS, THEATERS, MOTION PICTURE ROOMS, AND OTHER PLACES OF ASSEMBLAGE.

SEC. 342. PUBLIC BUILDINGS. In all public buildings or buildings of a public character, such as hotels, schools, churches, theaters, restaurants, railroad depots, public halls, and other buildings used or intended to be used for purposes of public assembly, amusement or instruction, and including department stores and other business and manufacturing buildings where large numbers of people are congergated, the doors, stairways, seats, passageways and aisles, and all heating appliances and apparatus shall be arranged as provided in this Code, to facilitate egress in cases of fire or accident and to afford the requisite and proper accomodation for the public protection in such cases.

All aisles and passageways in said buildings shall be kept free from any obstruction.

The Inspector of Buildings may at any time serve a written or printed notice upon the owner, lessee, or manager of any of said building, directing an act or thing to be done or provided in or about the said buildings and the several appliance therewith connected, such as halls, doors, stairs, windows, seats, aisles, fire walls, fire apparatus and fire escapes, as he may deem necessary for the safety of the occupants or the public.

SEC. 343. THEATERS WITH STAGE MORE THAN TWENTY FEET DEEP. Under this heading is included all theaters, opera houses, play houses, pavillions or any assembly hall having a permanent stage twenty (20) feet or more in depth from the curtain line to the rear wall, and upon which stage scenery and theatrical apparatus is employed, and having fly gallaries and rigging left, and a seating capacity of more than five hundred persons.

SEC. 344. ENTRANCES AND EXITS. The main auditoruim shall be on the ground floor and every such building shall have at least one front on a street, or on a public way, which public way shall not be less than thirty-six (36) feet in width, and in such front there shall be suitable means of entrance and exit for the audience. The stage shall be at the end of the building opposite the main

entrance or otherwise, if approved by the Inspector of Buildings.

SEC. 345. WIDTH OF MAIN CORRIDOR. The width of this main entrance or corridor leading from the street or public way to the main auditorium shall be not less at any point than fifteen (15) feet. The width of the main entrance or corridor shall be estimated on a basis of not less than twenty (20) inches for each one hundred persons (100) for whom seats are provided, and who may gain access to the corridor as a means of entrance or exit. The main corridor may serve as a common place of entrance and exit for the main floor of the auditorium and the balcony or first gallery, provided its capacity be equal to the aggregate capacity of the outlets from said main floor and balcony or gallery as provided for above in this section. The width of all entrances and exits for each distinct and separate division of the auditorium shall be based upon the same estimate of not less than twenty (20) inches for each one hundred (100) persons served by such entrances or exits. In case the balcony, or first gallery, in addition to the stairways or stairway connecting it with the main auditorium floor or main corridor has an inside stairway or stairways leading direct to the street or public way, then the capacity of this stairway may be taken into consideration in determining the width of the main corridor above the minimum width of fifteen (15) feet herein provided for.

SEC. 346. GRADIENTS. The level of all corridors, open spaces and exits shall be not more than one foot above the level of the sidewalk when they begin at the street or alley or outer public way, but this shall not preclude the use of steps at the entrances to the sides or rear of the building as may be necessary to overcome the difference in grade of sidewalks. To overcome slight difference of levels in and between any open spaces on the side of such theater or in and between any corridors, lobbies, passages or aisles on the ground floor, gradients shall be employed of not over one (1) foot in ten (10) feet with no perpendicular rises.

SEC. 347. SIDE COURTS. In addition to the main entrance or exit, there shall be an open court or space on the side not bordering on a street or public way, when the said building is located on a corner lot and on both sides of said building, when there is but one frontage on the street. The width of these open courts shall be proportional to the seating capacity of the theater, and

the general arrangement of the exits for speedily emptying the building.

There shall be no door or gates in these side courts or alleys, which side courts or alleys shall lead direct to a street or public way without a turn.

SEC. 348. COURTS AND CORRIDORS FIRE PROOF. All courts and corridors shall be entirely fire-proof and shall be used for no other purpose than for entrance and exit to and from the theater and stage.

SEC. 349. EMERGENCY EXITS. From the auditorium opening into the open courts or the side street or public way, there shall be not less than two exits on each side in either tier from and including the ground floor and each and every gallery.

Each exit shall be at least five (5) feet wide in the clear and provided with fire doors constructed as provided in this Code.

All of said doors shall open outwardly and shall be arranged to open by a slight pressure from the inside without the unfastening of bolts or latches.

There shall be balconies not less than four (4) feet in width in said open courts at each level or tier above the ground floor of sufficient length to embrace the two exits, and from said balconies there shall be staircases extending to the ground level with a rise of not more than eight (8) inches to a step, and not less than ten (10) tread exclusive of nosing.

All stairs and balconies shall be constructed of fire-proof material.

No circular or winding stairs for the use of the public shall be permitted, either inside or outside of the building.

SEC. 350. INSIDE STAIRWAYS. No theaters shall have more than three floor tiers above the main floor of the auditorium, which shall not be more than three (3) feet above the sidewalk or grade. Distinct and separate places of entrance and exit shall be provided for each gallery above the balcony or first gallery, by means of inside stairways leading to the street or other public way and not through the main auditorium or balcony.

No passage leading to any stairway communicating with an exit (not including fire escapes exits), shall be less than four (4) feet in width.

The width of all stairs shall be measured in the clear between hand rails.

SEC. 351. RISES AND TREADS. In no case shall the risers of any inside stairway exceed eight inches

in height, nor shall the treads exclusive of nosings be less than ten inches in width in straight stairs.

All stairs within the building shall be constructed of fireproof material throughout.

Stairs from balcony or galleries shall not communicate with the basement or cellar.

No door shall open immediately upon a flight of stairs, but in all cases a landing at least the width of the door shall be provided.

SEC. 352. DOORS TO OPEN OUTWARDLY.

All doors shall open outwardly as hereinbefore provided in the case of emergency exits.

All stairs shall have treads of uniform width and risers of uniform height throughout in each flight.

SEC. 353. WIDTH OF INSIDE STAIRWAYS.

No stairways from galleries shall be less than four (4) feet in width.

When accomodation is provided for one hundred (100) or more people, there shall be at least two stairs extending to the ground arranged on opposite sides of gallery and for every additional seventy-five (75) people or fraction thereof in excess of the first one hundred (100) to be accomodated, six inches shall be added to the width of the stairs divided between the two flights.

Where the seating capacity of the galleries is for more than one one thousand (1,000) persons, one or more additional staircases shall be provided.

SEC. 354. STAIR LANDINGS IN THEATERS.

When straight stairs return direct on themselves, a landing of the full width of both flights without any steps shall be provided.

The outer line of landings shall be curved to a radius of not less than two (2) feet to avoid square angles.

Stairs turning at an angle shall have a landing without winders introduced at said turn.

In stairs when two side flights connect with one main flight, no winders shall be introduced, and the width of the main flight shall be at least equal to the aggregate width of the side flights.

SEC. 354½. HAND RAILS. All incosled staircases shall have on both sides strong hand-rails, firmly secured to the wall about three (3) inches distant therefrom and about three (3) feet above the stairs, but said hand-rails shall not run on level platform and landings where the same are of greater length than the width of the stairs.

All staircases eight (8) feet and over in width shall be provided with a center hand-rail of metal not less than two (2) inches in diameter placed at a height of about three (3) feet above the center of the treads and supported on wrought metal or brass standards of sufficient strength placed not nearer than four (4) feet nor more than six (6) feet apart, and securely bolted to the treads or risers of stairs, or both, and the head of each flight of stairs on each landing the post of standard shall be at least (6) feet in height, to which the rail shall be secured.

SEC. 355. PROSCENIUM WALL. A fire wall built of brick or its equivalent not less than thirteen (13) inches in any portion of same shall separate the auditorium from the stage, and the same shall extend at least four (4) feet above the stage roof, or the auditorium roof, if the latter be the higher and shall be coped.

Above the proscenium opening there shall be an iron girder of sufficient strength to safely support the load above, and the same shall be covered with fireproof material not less than four (4) inches in thickness.

Should there be constructed an orchestra over the stage above the proscenium opening, the said orchestra shall be placed on the auditorium side of the proscenium fire wall, and shall be entered only from the auditorium side of said wall.

The moulded frame around the proscenium opening shall be formed entirely of fireproof materials; if metal be used, the metal shall be filled in solid with non-combustible material and securely anchored to the wall with iron.

SEC. 356. CURTAIN. The proscenium opening shall be provided with a fireproof metal curtain (or a curtain of asbestos or other fireproof material approved by the Inspector of Buildings, overlapping the brick proscenium wall twelve (12) inches at each side within iron grooves or channels to be securely bolted to the brick wall and extend to a height of not less than three (3) feet above the top of the curtain when raised to its full limit. Said curtain to be suspended or hung by steel cables passing over wrought iron or steel sheaves supported by wrought iron brackets or sufficient strength and well braced; the brackets to be securely attached to the proscenium wall by through bolts with nuts and washers on the opposite side of the wall. Said fireproof curtain shall be raised at the commencement of each performance, lowered between each act, and lowered at the close of said performance, and be operated by approved machinery for that

purpose. If the proscenium curtain be of asbestos, that material shall be reinforced with wire spun in the asbestos, and at the bottom of the curtain shall be placed a rigid rod or bar or proper weight securely fastened to the curtain and covered over with like material as the curtain itself, to carry down the curtain by the weight of the said rod or bar when released. The excess weight of the curtain is to be overcome by a check rope of cotton or hemp, extending to the floor on both sides of the stage so that the cutting or burning of which will release the curtain and the same will then descend at its normal rate of speed.

The proscenium curtain shall be placed at the nearest point at least two (2) feet distant from the footlights.

No doorway or opening through the proscenium wall from the auditorium shall be allowed above the level of the first floor, and such first floor opening shall have self closing standard fire doors at each side of the wall, and opening, if any below the stage, shall each have a self closing standard fire door, and all of the said doors shall be hung so as to be opened from either side of the wall at all times.

SEC. 257. SKYLIGHTS. There shall be provided over the stage metal skylights of an area or combined area at least one twelfth of the area of said stage, fitted with rolling sash and glazed with glass not exceeding one eighth of an inch in thickness, and each pane thereof measuring not less than three (300) hundred square inches.

The rolling sash shall be fitted with brass wheels not less than two and one-half ($2\frac{1}{2}$) inches in diameter, and the latter shall roll on metal tracks extending the entire length of the sash.

The portion of the tracks extending from the edge of the curb of the skylight to the end of the incline may be made of iron. These skylights shall be set on curbs so that the lower portion of the tracks upon which they slide shall be not less than twelve (12) inches above the roof. The whole of which skylight shall be so constructed as to open instantly on the cutting or burning of a hempen cord which shall be arranged to hold said skylight closed, or some other equally simply approved automatic device for opening them may be provided.

Immediately underneath the glass of said skylight there shall be wire netting, but wire glass shall not be used in lieu of this requirement.

SEC. 358. VENTILATOR. In lieu of the skylights covered with glass, provided for ventilators may be used, constructed as follows:

There shall be one or more ventilators constructed of metal or other incombustible material near the center above the highest part of the stage in every theater.

Stage ventilator shall extend at least fifteen (15) feet over all above the stage roof and shall have a combined area of at least one twelfth of the area within the stage walls.

The opening in every stage ventilator shall be closed by one or more dampers so counterbalanced as to open automatically and to be held closed by a hempen cord, in which shall be inserted a fusible link at such a point as to be near the bottom of the ventilator. Such cord or cords operating said dampers shall be run to stage floor and to be fastened at a point nearest and shall be designated with a sign to read "Release in Case of Fire."

It is imperative that said automatic dampers and their counterbalancer be tested from time to time and kept in perfect working order so as to insure an automatic release at all times.

SEC. 359. STAGE. All that portion of the stage not comprised in the working of scenery, traps and other mechanical apparatus, for the presentation of a scene, usually equal to the width of the proscenium opening, shall be built of iron or steel beams filled in between with fireproof material and all girders for the support of said beams shall be of wrought iron or rolled steel.

The fly galleries and tie galleries entire, including pinrails shall be constructed of iron or steel. and the floors of said galleries shall be composed of iron or steel beams filled in with fireproof materials, and no wood boards or sleepers shall be used as covering over beams, but the said floor shall be entirely fireproof.

The gridiron or rigging left shall have a lattice iron floor and be readily accessible by iron stairways.

SEC. 360. FIREPROOFING. All stage scenery, curtain and decorations made of combustible material, and all woodwork about the stage, shall be painted or saturated with some non-combustible material or otherwise rendered safe against fire.

And the finishing coats of paint applied to all woodwork throughout the entire building shall be of such kind as will resist fire.

The ceiling over the auditorium and the entire main floor of the auditorium and vestibule, also the entire superstructure over the entrance, lobby and corridor and all galleries and supports for the same in the auditorium shall be constructed of fireproof materials, approved by the

Inspector of Buildings, not excluding the use of wood floor boards and necessary sleepers to fasten the same to.

SEC. 361. SLEEPERS. Such sleepers shall not mean timbers of support, and the space between the sleepers, excepting the portion under the stepping in the galleries (which shall be properly firestopped, shall be solidly filled with incombustible material up to the under side of the floor boards.

The front of each gallery shall be entirely formed of fireproof materials, except the capping which may be made of wood.

The ceiling under each gallery shall be entirely formed of fireproof materials.

The ceiling of the auditorium shall be formed of fireproof materials. All lathing, whenever used, shall be of wire or other fireproof material on metal or fireproof studding.

The partition in that portion of the building which contains the auditorium, the entrance and vestibule, and every room and passage devoted to the use of the audience, shall be constructed of fireproof material, including the furring of outside or other walls. None of the walls or ceilings shall be covered with wood sheathing, wood wainscoting or any combustible material.

But this shall not preclude the construction of a wood sounding board over orchestra pit when the same extends back of and below the overhang of the stage, provided the said wood sheathing be properly firestopped by a twelve inch brick wall back of same, and also have a proper fireproof construction directly under the overhang of the stage extending from the brick wall to the apron of the stage.

SEC. 362. DRESSING ROOMS. All walls and ceilings inclosing or dividing actors' dressing rooms shall be fireproof.

All stairways, passages and doors from dressing rooms to stage or from dressing rooms to exits shall be fireproof.

Dressing rooms may be placed in the rear or at either side of the stage, provided that thorough ventilation is secured for said rooms and provided further that proper exits lead to public way. All shelving and cupboards in each and every dressing room, property room or other storage rooms shall be constructed of metal, slate or some fireproof material.

SEC. 363. WINDOWS. None of the windows in outside walls shall have fixed sashes, fixed iron grills or

bars; those may be arranged to hinge and lock, and must be left unlocked during performances.

SEC. 364. SEATS AND AISLES. All seats in the auditorium, excepting those contained in boxes, shall be not less than thirty-two (32) inches from back to back measured in a horizontal direction, and firmly secured to the floor.

No seat in the auditorium shall have more than six seats intervening between it and an isle on either side.

No stool or seat shall be placed in any aisle.

All platforms in galleries formed to receive the seats shall be not more than twenty-four (24) inches in height of riser, not less than thirty (30) inches in width of platform.

All aisles in the respective floors in the auditorium having seats on both sides of same shall be not less than three (3) feet wide where they begin, and shall be increased in width toward the exits in the ratio of one and one-half ($1\frac{1}{2}$) inches to five running feet. Aisles having seats on one side only, shall be not less than two feet six inches wide at the beginning and increased in width the same as aisles having seats on both sides.

SEC. 365. FOYERS. The aggregate capacity of the foyers, lobbies, corridors, passages and rooms for the use of the audience, not including aisle space between the seats, shall on each floor or gallery be sufficient to contain the entire number to be accommodated on said floor or gallery in the ration of one hundred and fifty (150) superficial feet of floor room for every one hundred (100) persons.

SEC. 366. HEATING. Every steam boiler which may be required for heating or other purposes, shall be located outside of the building, either under the sidewalk or in an extension, but in no case under or within any portion of the building used for theatrical purposes, and the space allotted to the same shall be inclosed by walls of masonry on all sides, and the ceiling of such space shall be constructed of fireproof materials.

All doorways in said walls connecting with the building shall have standard automatic sliding fire doors.

No floor register for heating, ventilating or other purposes shall be permitted.

No coil or radiator shall be placed in any aisle or passageway used as an exit, and thereby reduce the same to less than the width required by this Code, but all said coils and radiators shall be placed in recesses formed in wall or partition to receive same.

All supply, return or exhaust pipes shall be properly incased where passing through floors or near woodwork.

SEC. 367. STAND PIPES. Standpipes of not less than four (4) inches in diameter shall be provided, same to be supplied by a main not less than six (6) inches in diameter to be connected to the street main and extended to the inside of the proscenium wall under the stage where suitable fittings must be installed to allow a four-inch lead to either side of building for standpipe service.

All standpipes to be free of obstruction; said standpipes to be supplied with hose connections as follows:

One on each side of auditorium in each tier.

One on each side of the stage in each tier.

One within ten (10) feet of the door of the carpenter shop and scenery storage room.

Standpipes shall receive their supply of water from the city mains, and in addition to this requirement a "Siamese" inlet connection with two, two and one-half inch female hose connection for steamer supply shall be placed on outside of building in a convenient place, said location to be approved by the Chief of the Fire Department; said hose connection to have the thread used by the Birmingham Fire Department.

This system shall also be connected to the automatic sprinkler system. Pipes shall be fitted with approved straightway composition gate valves at hose outlets, and the thread of all connections shall be uniform with that in use by the local Fire Department.

One spanner to be located at each hose connection.

Pipes shall be kept constantly filled with water under pressure and be ready for immediate use at all times.

A sufficient quantity of approved linen, cotton rubber lines or rubber hose not less than two and one-half (2½) inches in diameter, in fifty foot lengths, shall be attached to each hose connection. Hose shall be fitted with washers and equipped with couplings and nozzles, the thread of which shall be uniform with that in used by the local Fire Department.

SEC. 368. AUTOMATIC SPRINKLERS. A system of standard automatic sprinklers shall be installed throughout the entire stage section of the theater, located in the rear of the proscenium wall, this to include under roof, under gridiron, under galleries, under the stage, in all dressing rooms, and in all workshops, property and all other rooms and passageways. There shall be an independent water supply to the sprinklers, which may

consist of a gravity tank of not less than ten thousand (10,000) gallons capacity, and elevated not less than twenty-five (25) feet above the highest sprinkler, the tank to be supplied from the city main, which has a normal pressure of about seventy (70) pounds to the square inch.

There shall be kept in readiness for immediate use one forty gallon cask filled with water and six fire pails on each side of the stage, under the stage, on each fly gallery, and a supply of fire pails in property and other store-rooms and in each workshop; said casks and buckets shall be painted red and lettered "For Fire Purposes Only."

There shall also be provided six three-gallon approved chemical fire extinguishers, at least four axes, two twenty foot hooks, two fifteen foot hooks and two ten foot hooks on the stage, and such other appliances as may be required for fire protection.

SEC. 369. LIGHTS. Every portion of the building devoted to the use or accommodation of the public, also all outlets leading to the streets and including the open courts and corridors, shall be well and properly lighted during every performance, and same shall remain lighted until the entire audience has left the premises.

There shall be one light within a red globe or lantern placed over each exit opening on the auditorium side of of the wall.

A diagram or plan of each tier, gallery or floor, showing distinctly the exits therefrom, each occupying a space not less than fifteen (15) square inches, shall be printed in black lines in a legible manner on the program of the performance.

Every exit shall have over the same on the inside the word "EXIT" in legible letters not less than eight inches high.

SEC. 370. OPEN TO PUBLIC. No building hereinbefore described shall be open to the public until the Inspector of Buildings shall have approved the same as conforming to the requirements of this Code; nor until the Chief of the Fire Department shall have certified that all appliances for the extinguishing of fire conform to this Code, and to the special requirements of the Fire Department, and are in a complete and satisfactory working condition.

SEC. 371. THEATERS WITHOUT FLY GALLERY OR RIGGING LOFT. Theaters, halls, club or assembly

rooms having a stage less than twenty (20) feet in depth with no basement under same and having no fly gallery or rigging loft, but simply a stage to be used for concerts, vaudeville performances and like forms of amusements, and seating less than five hundred (500) persons, will not be required to have solid masonry proscenium walls as required for theaters of the first class described in this Code, but all partitions shall be of metal lath and plaster or other fireproof construction.

All curtains and scenery used in such buildings shall be fireproofed.

Standpipes and other fire appliances, such as are required for theaters with proscenium wall, fly gallery and rigging loft will not be required but each such building shall be equipped with at least three chemical fire extinguishers of three gallons capacity each and such other fire fighting apparatus as may be necessary to safeguard the building. The arrangements of exits, aisles and seats shall be the same as prescribed for theaters of the first class of like seating capacity, except that theaters having no balcony or gallery, and seating less than five hundred (500) persons, may have only one side exit in addition to the main entrance, this side exit to be not less than five (5) feet in width.

SEC. 372. HALLS ABOVE SIDEWALK LEVEL.

No public hall or assembly hall seating more than five hundred (500) people, shall be located more than thirty (30) feet above the sidewalk, unless such room is in a fireproof building made fireproof throughout, and connected with the street by fireproof stairways of such width as is else where provided in this Code. Such hall may have a stage, but no movable scenery.

Baseball stands and all other forms of outdoor places of amusement shall conform to all the requirements of this Code for public halls, as to aisles, stairways, arrangement of seats, and all the construction of such stands shall be subject to the requirements of this Code, and the approval of the Inspector of Buildings.

SEC. 373. MOTION PICTURE THEATERS OR AUDITORIUMS. Every theater or auditorium seating less than five hundred (500) persons, and used for the purpose of operating a moving picture machine shall be on the ground floor of the building in which it is located, and shall front on a public way. Gradiance shall be employed to overcome difference in grade of level.

In no case shall there be a means of connection from

said room to any other room or building, nor shall any other business be operated or conducted in such room.

All exterior walls shall be of some incombustible material.

Every room used for the purpose of exhibiting motion pictures shall have two exits in the front, or their equal, and at least one exit on the side or rear. Each exit doorway shall not be less than five (5) feet in width.

All doors must open outwardly and shall not be locked or bolted while the room is open to the public.

Side or rear exits shall open direct into a street, alley or courtyard, free from obstruction, with direct access therefrom to a public way. No aisle shall be less than three feet in width.

All seats shall be not less than thirty-two (32) inches from back to back, and not less than twenty (20) inches in width from center to center of the arms.

Seats shall be firmly secured to the floor. No cheap chairs or stools shall be used in such rooms.

SEC. 374. SUCH THEATERS shall not be constructed, fitted up or operated or licensed until a permit therefor has been issued by the Inspector of Buildings and the City Electrician. Said officers are hereby directed and authorized to issue such permits for theaters provided they are constructed in accordance with plans approved by them, and in accordance with the requirements of this Code, and which plans secure the safety of persons patronizing same.

SEC. 374½. WIRING. All wiring in such theaters shall be installed in conduits under the direct supervision of the City Electrician and where he condemns any such wiring same shall be reinstalled under his direction and approved and where he condemns wiring hereinafter installed same shall likewise be reinstalled.

SEC. 375. FUSES. All fuses used in connection with lights illuminating the parts of the house, room or auditorium used by the audience must be installed in fireproof enclosures, so constructed that there will be a space of at least six (6) inches between the fuse and the sides and the face of the enclosure.

Sec. 376. EXITS. All exits shall be plainly indicated by a sign, same to be illuminated and bear the word "exit." The letters of which must not be less than four (4) inches in height, and there must not be more than one set of fuses in any "EXIT." sign circuit between the service fuses and sign.

SEC. 377. INSIDE LIGHTS and all lights in halls, corridors or any other part of the building used by the audience, except the general auditorium lights, must be fed independently of the stage light and must be controlled only from the lobby or other convenient place in front of the house, and there must be two circuits in the auditorium, one controlled by the operator in booth and one controlled from without the auditorium in lobby or without the entrance.

SEC. 378. LIGHTS. Every portion of the building devoted to the use or accommodation of the public, all outlets leading to the streets, all open courts, corridors, hallways and exits shall be thoroughly lighted during every performance and the same shall remain lighted until the entire audience has left the premises. One sixteen-candle power incandescent lamp for every four hundred (400) square feet of floor is hereby ordained as sufficient illumination.

SEC. 379. CONSTRUCTION OF ARC LAMPS. Each arc lamp used as a part of the motion picture machines must be constructed as directed by the City Electrician and the wiring of same must not be of less capacity than No. 6 B. & S. gauge. Rheostats must conform to rheostat requirements as directed by the City Electrician.

SEC. 380. TOP REEL must be incased in an iron box, which box has a hole at the bottom only large enough for films to pass through, and cover therefor so arranged that this hole can be closed. No solder to be used in the construction of this box.

SEC. 381. THE HANDLE OR CRANK used for operating the machine must be secured to the spindle or shaft so that there will be no liability of such handle or crank coming off or allowing the film to stop in front of the lamp.

A shutter must be placed in front of the condenser arranged so as to be closed normally, subject to open only by outside pressure, such as the pressure of the foot.

SEC. 382. EXTRA FILMS must be kept in a metal box having a tight fitting cover. Said machines must be operated by hand. Motor driven machines are hereby prohibited.

SEC. 383. ENCLOSING THE MACHINE. The picture machine must be placed in an inclosure or house made of or lined with fireproof material, thoroughly ventilated and large enough for the operator to walk freely

on either side or back of the machine. Such enclosure or house must have no openings into the auditorium other than the openings where the light for the picture is emitted, and this opening must be provided with fireproof covering and door hinged with spring hinges, opening by a trigger which is in reach of the operator, so that it can be released by hand, and which door must be constructed so that it can be securely closed. Furthermore if the Inspector of Buildings decided that the arrangements are such as would require it, such door must be so arranged that it may be released automatically. All other openings such as vents and entrances to the enclosure, must open into other part of the building or theater than the main auditorium. No electrical pictures or material of any kind will be permitted in the operating booth other than picture machine and its accessories.

SEC. 384. FIRE EXTINGUISHERS. In every room where picture machines are operated, there shall be places three (3) chemical fire extinguishers of type approved by the Board of Fire Underwriters. One extinguisher shall be placed in the operating booth, one near the curtain and one near the front or main entrance.

All motion picture theaters with seating capacity of five hundred (500) or more, shall conform to all requirements of this Code, for theaters with fly galleries or rigging loft.

SEC. 385. REPAIRS AND GENERAL CONSTRUCTION AND REGULATIONS. Any work or addition or alteration made into or upon any house or building, except the necessary repairs not affecting the external or party wall, chimneys, stairways, or height of buildings or house, shall to the extent of such work, alteration or addition, be subject to the laws and ordinances of the City of Birmingham. When such changes other than the necessary repairs or wear and tear are desired, it will be necessary to make all parts of said building comply with the laws and ordinances of the City of Birmingham, if such repairs are reasonably necessary to put said building or house, in a safe condition, to be used as intended.

SEC. 386. BUILDING IN THE FIRE LIMITS. No person or persons shall erect, or cause to be erected within the fire limits of the City of Birmingham, and building or addition to a building, the outer walls of which are not composed entirely of brick, stone, concrete, or other incombustible material, and the roof thereof covered with

slate, tin, zinc, copper, iron, gravel or other equally fire-proof roofing, and if any building within the limits aforesaid shall be damaged to the extent of one-half the present value thereof it shall be unlawful to rebuild same, unless the outer walls and roof of the portion rebuilt shall be composed entirely of incombustible materials.

SEC. 387. SHEATHING AND WAINSCOTING.

No wall in any building hereafter erected other than buildings or portions of buildings occupied exclusively for dwellings or club purposes shall be covered with wood sheathing, or any combustible material.

SEC. 388. ATTICS OR COCK-LOFTS IN PEAKED ROOFS.

No part of any attic or cock-loft roof below or within the trusses or rafters of a pitched roof of any building other than a dwelling house hereafter erected shall be so built as to provide an accessible place for storage or placing therein of any articles whatsoever. If any portion of the roof trusses, rafters or beams of a pitched roof ceiled or plastered or a ceiling suspended therefrom, to form a ceiling for the uppermost story of a building, the space above such ceiling shall not be used for the storage or placing of any article whatsoever therein, and entrance to such space shall be made inaccessible. This, however, shall not prohibit tightly inclosed vertical well-hole through such space to ascend to the scuttle door on the roof.

SEC. 389. ALL BAY, ORIEL AND SHOW WINDOWS TO BE FIREPROOF.

Bay windows, oriel windows and show windows above the first story on the street front or side of any building may project not more than one foot beyond the building line and if so projecting shall be constructed of fireproof materials and in such manner as will meet with the approval of the Inspector of Buildings. All outside Panels and Molding shall be fire-proof on show windows.

SEC. 390. SYSTEM OF VENTILATION.

Every hall, auditorium or room of every building hereafter erected for, or converted to use as a school house, factory, workshop, theater or place of public assembly or entertainment shall have in continuous operation while occupied a system of ventilation so contrived as to provide twenty-five (25) cubic feet per minute of outer air for each occupant and for each light other than an electric light. Or when any room or space is so proportioned as not to allow each occupant, if children six hundred (600) cubic feet, and if

adults one thousand (1,000) cubic feet of fresh air per hour, or less than three times such amounts, in sick rooms or hospitals, by natural means without exposure to improper air currents, then such rooms shall be ventilated by artificial means. All basements and cellars and underneath all wood beams or floors shall be well ventilated.

SEC. 391. GRAIN ELEVATOR AND COAL POCKETS. Nothing in this Code shall be so construed as to apply to or prevent the erection of what are known as grain elevators, as usually constructed, provided they are erected in isolated localities and under such conditions as the Inspector of Buildings may prescribe, including location. Nor to apply to or prevent the erection of coal pockets or coal elevators as usually constructed under similar conditions including location.

SEC. 392. ICE HOUSES. Buildings to be used exclusively for the storage of ice or other incombustible materials may be erected in isolated localities and constructed of such material and under such conditions as the Inspector of Buildings may prescribe.

SEC. 393. WOODEN LINTELS. No brick or stone wall, piers or abutment shall be supported upon wooden lintels, girders or columns of wood.

SEC. 394. AWNINGS. When awnings are attached to buildings the frame work shall be of metal. All awnings shall be seven feet in clear of sidewalk when down.

SEC. 395. FROM THE GROUND. It shall be unlawful for any owner, or tenant, or other person having control over any building, to erect, keep, maintain or permit thereon, or attached thereto, any awning which shall be less than seven feet from the lowest portion thereof to the sidewalk, street or alley beneath.

SEC. 396. REFUSING TO MOVE WOODEN BUILDING. The owner or any person having control of a wooden building within the fire limits of the city, which has been erected by permission of and is subject to be removed by direction of the Inspector of Buildings, who neglects or refuses to remove such building within reasonable time after being notified to do so by the Inspector of Buildings or other city officer acting under the direction of the Inspector of Buildings, most on conviction be fined not less than ten (10) nor more than one hundred dollars.

SEC. 397. WHAT CONSTITUTES WOODEN BUILDINGS. Any building having more wood on the outside of the building than that required for the door and window frames, doors, sash and wooden steps, shall constitute and be deemed a wooden building, and this ordinance shall not be so construed as to allow the use of sheet iron or tin in the structure of the sides or fronts of buildings or otherwise than as a roof. Any person violating or attempting to violate any of the provisions of this section shall be fined not less than ten dollars for each offense, and the building roof, cornice or other structure so erected or renewed in violation of law shall be taken down and removed.

SEC. 398. UNLAWFUL TO ERECT BUILDING IN VIOLATION OF ORDINANCES WHEN SO ERECTED TO BE REMOVED. Any person erecting or causing to be erected in the fire limits of Birmingham any building or structure contrary to the laws or ordinances of the city shall be fined as provided in Sec. 806, of the City Code, and in case any building or structure be erected in said city contrary to the laws and ordinances of the city, the same shall be pulled down or removed upon ten days notice from the Inspector of Buildings or other officer by order of the Inspector of Buildings; and after notice to remove such building it shall be unlawful for the owner, proprietor lessee, or their agents or employees, to occupy such building any portion of the day or night.

No Wooden Buildings in Fire Limits. It shall be unlawful to construct, renew or repair any wooden building or any part thereof within the fire limits or to remove any wooden building to any point within said limits; nor shall any roof or cornice to any building be constructed, renewed or repaired within the fire limits with any, material not fireproof, except as specifically provided in the building Code.

SEC. 399. NO SHEDS IN FRONT OF BUILDING NOR POSTS IN SIDEWALKS WITHIN FIRE LIMIT. No shed shall be erected in the front of any building, nor shall any posts, except hitching posts, or posts for wires, be placed on or in the sidewalk in front of any building within the fire limits of the city.

SEC. 400. WHEN FRAME BUILDINGS NOT TO BE REMOVED. No frame building shall be removed in the city limits, unless said building is worth fifty per cent of a similarly new building.

SEC. 401. UNLAWFUL TO OBSTRUCT FIRE HYDRANT. It shall be unlawful for any person to place any building material, or any other obstruction whatever within ten feet of any public hydrant or plug, and any person so offending shall be fined not less than ten nor more than fifty dollars.

SEC. 402. WINDOWS OF BUILDINGS FRONTING RAILROAD TO BE SCREENED. All windows of the railroad front of any building whose base is within six feet on a direct line from the nearest rail of any railroad on which an engine, dummy or other locomotive is operated by steam shall be screened with a No. 19 wire with one-fourth inch mesh, or No. 20 wire with three-sixteenths mesh. Said screens shall be securely fastened on the outside of the brick work or woodwork over said windows, shall be constructed with a substantial frame and shall be stationary and not sliding. The owner of the building in which each window is located, as well as the tenant or other person in actual charge or possession of said building shall be responsible for the construction and maintenance of said window and screen in accordance with the terms of this Code.

SEC. 403. PERMIT TO BE OBTAINED. No stand for the sale of fruit and confectionaries shall be erected upon the sidewalks of the city without the written permit of the Inspector of Buildings being first had and obtained; nor shall any such stand be erected and maintained without the consent of the owner or lessee of the building which it adjoins.

SEC. 404. SPACE TO BE OCCUPIED. No fruit stand on the sidewalk shall be allowed to occupy a greater space than twenty-five feet long and three feet wide, and such space shall be kept free of boxes, barrels and other articles not actually used in carrying on the sale of fruit, confectionaries and like articles.

SEC. 405. ERECTING STABLE. No person shall use any private stable or other building for the keeping or stabling of any horse, mule or cow, within twenty feet of any street of the city or within thirty feet of the dwelling of any other person, without the consent of such person.

SEC. 406. SIDEWALKS AND GUTTERS TO BE KEPT OPEN WHILE BUILDING. All parties erecting or improving any building within the city shall keep the sidewalk adjoining, and adjoining thereto, open and clear, for the passage of persons along said sidewalks, by erect-

ing protection overhead, so that it will be safe to pass; and by keeping such sidewalk in such condition, that persons can pass along such sidewalk; and the gutters shall be kept open so as to allow the water to drain off unmolested.

SEC. 407. PERSONS USING STREETS FOR BUILDING MATERIAL MUST GIVE BOND. It shall be unlawful for any person, or persons, to occupy or use any street, sidewalk avenue or alley of the City of Birmingham, or any part thereof, with building material, without, first giving bond to indemnify the city against any. and all losses or damages caused by the manner in which the privilege is so used, and the right to occupy the said street sidewalk or alley is exercised. Such bond to be such an amount as prescribed by the Mayor. Said bond to be made so as to cover any loss or damage to the city, caused by the erection or maintainence of any temporary sidewalk, footpath, street or causeway, which is erected or maintained or both, by said person or persons on account of the obstruction, of any such street, sidewalk or alley.

SEC. 408. LEAVING EXCAVATION OR OBSTRUCTION IN STREET. Any person who leaves an excavation in any street or sidewalk or any material while building or repairing any house or other structure, in such a condition as to endanger persons passing along the street or sidewalk, must on conviction, be punished as provided in this Code.

SEC. 409. ERECTING STEPS ON SIDEWALK. Any person who erects any step or steps upon any sidewalk (except by permission of the Inspector of Buildings) must, on conviction, be punished as provided in this Code.

SEC. 410. LEAVING OPENING UNCOVERED. Any person who leaves open or causes to be left open any cellar or vault door or grating, when the same is not in actual use, or at night, or who suffers any sidewalk in front of or along the line of his premises, to become or continue so broken, or so much out of repair as to endanger life or limb; or who permits other axcavations to remain open or uncovered to the danger of others, must on conviction, be punished as provided in this Code.

SEC. 411. STAIRWAYS TO CELLARS, HOW CONSTRUCTED. For the purpose of stairways to cellars under special permits of the Inspector of Buildings he may allow openings in the sidewalk not exceeding three feet in width where the sidewalk is not less than twelve feet wide, which opening shall not be more than

twelve feet long, and all such openings shall be guarded with neat, substantial iron railing and newel posts, provided there shall be but one such opening to each building.

No openings shall be allowed in the sidewalk except by the special permission of the Inspector of Buildings.

SEC. 412. KEEP BUILDINGS CLOSED. It shall be unlawful for the owner of any lot or premises in the City of Birmingham to permit any house, outhouse, building or structure on said lot or premises to be left open, unlocked or left in such condition so that it may be entered, used or occupied by tramps, vagrants or other unauthorized persons. And the owner or person having control of any lot or premises, whereon is situated any house, outhouses, or structure which can be so entered, occupied or used, is required within ten days, after being notified to do so, either to tear down or remove same, or so close and arrange the same as to prevent such entry, occupation or use. And any owner or person in charge or control of such lot or premises, who shall after ten days from the serving of such notice permit or suffer on any lot or premises owned or controlled by him, any such house, outhouse or structure, as is herein described shall, upon conviction, be punished as provided in this Code. And each days continuance of such nuisance shall be a separate offense.

SEC. 413. STOPPAGE OF WORK IN BUILDINGS. In case there shall be in the opinion of the Inspector of Buildings, danger to life and property by reason of any defective or illegal work, or work in violation of, or not in compliance with any of the provisions or requirements of this Code, the Inspector of Buildings, or such person as may be designated by him shall have the right, and he is hereby authorized and empowered to order all further work to be stopped in and about said building, and to require all persons in and about said building forthwith to vacate same.

SEC. 414. AUTHORITY TO TEMPORARILY CLOSE SIDEWALKS AND STREETS. And said Inspector may, when necessary for the public safety, temporarily close the sidewalks and streets adjacent to such building or part thereof and prohibit the same from being used, and the Police Department when called upon by the said Inspector of Buildings to co-operate, shall enforce such orders or requirements.

SEC. 415. UNSAFE BUILDINGS. Every building which shall appear to the Inspector of Buildings to be dangerous, in case of fire or panic, by reason of bad condition of walls, overloaded floors, defective construction, decay, or not provided with safe stairways, or without a sufficient number of stairways, or exits, or lights, for the proper accommodation of persons and from the nature of such building, or the business carried on therein, or other cause shall be held to be unsafe, and are hereby declared to be a public nuisance, and the maintenance of the same subject to punishment as provided in this Code. When any building, staging or other structure is found by the Inspector of Buildings of the City of Birmingham to be unsafe or dangerous for any reason, or in the condition set out in this section, it shall be condemned by him, and note of such condemnation entered by him in a book to be kept by him and for such purpose, which shall be open to the inspection of the public. He shall also give notice to the owner, agent or person having charge or control of such building, staging or other structure, stating that the same is unsafe, dangerous or otherwise in the condition mentioned in this section, and that the same has been condemned and setting out in such notice in what such building, staging or other structure is in such condition, and giving to such owner, agent or other person a reasonable time in which to remedy the condition of said building, or to destroy the same if its destruction be required in its condition under the laws and ordinances of the City of Birmingham. Any person upon whom the duty rests of remedying the condition of any such building, staging or other structure, or of destroying the same, who after such notice fails or refuses within a reasonable time to remedy such condition or destroy such building, shall on conviction, be punished as provided in this Code.

The Inspector of Buildings may also post or cause to be posted notices of the condemnation of such building, staging or other structure in one or more conspicuous places on such building, staging or other structure, and if the condition of same shall render it necessary or advisable to take such step, he shall rope off the said building, staging or other structure or cause it to be roped off.

It shall be unlawful for any person, firm or corporation to use or to cause, permit or suffer to be used, any condemned building or to remove or tamper with any sign, rope or other notice put up under the provisions of this ordinance, or to cause or suffer the same to be done, and it shall be the duty of any such person, firm or cor-

poration to maintain such notices and ropes and see that the same are kept as posted and put up.

When any unsafe or condemned building, staging or other structure, shall be rendered safe and the Inspector of Buildings apprised of the same, he shall take down all ropes and notices provided for in this Section, and mark off the condemnation as kept by him on the book as provided for.

SEC. 416. OCCUPATION PROHIBITED IN FIRE LIMITS. No building within the fire limits of the City of Birmingham shall be used or occupied, in whole or in part, for any of the trades hereinafter mentioned, to-wit: Planing mills, sash, door and blind factories, carpenter or cooper shops, wagon or carriage manufacturies, cabinet and furniture, factories, wood turning and veneering works, agricultural implement manufacturing, box and trunk factories, or any other wood working factory or shop unless such building so occupied shall have in connection with it a brick fireproof vault of sufficient capacity to contain all shavings, sawdust, chips or other light combustible refuse connected therewith and all such shavings and other light combustible refuse shall be removed daily from such premises to such vault, or from premises beyond the fire limits. In no event shall proprietors, owners, or lessees of such manufacturies allow combustible refuse to accumulate upon any lot or in any building unless stored in a fireproof vault of sufficient capacity to contain all shavings, sawdust, chips or other light combustible refuse, which shall be removed daily from such premises to such vault, or from said premises beyond the fire limits.

SEC. 417. EXITS. All egress openings in public halls shall have the word "EXIT" conspicuously placed over them. The aisles in such halls shall at all times be kept unobstructed. Doors of all exits from schools, halls, hotels, churches, theaters and all buildings of like character to open outward in all cases.

SEC. 418. TENTS AND WAGONS. No tent, wagon or other wooden or canvas structure of like kind or character or partly wooden or partly canvas structure of like kind or character shall be used for any place of business on any property in the City of Birmingham where a frame building is not allowed under the building laws of the city, except under special permit granted by the Inspector of Buildings, and that any and all such structures now used in violation of this Code shall obtain such special permits within thirty days hereafter, otherwise the same are here-

by declared to be nuisance, and each person, firm or corporation, causing, permitting or suffering the same to remain in violation of this ordinance shall be punished as provided in this Code.

SEC. 418½. HANGING SIGNS. Any person who erects, or puts up or places in position any sign or other advertising devise of wood, metal or other material that extends over, projects into, rests upon, or obstructs any sidewalk or street, or any part of either of them, in the city limits without a permit shall upon conviction, be punished as provided in this Code.

SEC. 419. SIGNS AND BILLBOARDS. A permit must be obtained from the department of building to erect a sign of any description and a fee of \$1.00 shall be charged.

All permits for signs shall be subject to the approval of the Board of Commissioners.

Electric or other signs attached to buildings.

Signs of which are made of metal no wood or glass will be permitted except the globes, bulbs or glass one-fourth of an inch thick containing not over four superficial inches, each piece separated a half inch apart for the formation of letters only, and to be securely attached to the body of the sign.

No sign shall contain more than forty feet of sign surface to the side, except as may otherwise be approved by the Board of Commissioners.

All electrical signs shall be wired according to the rules and regulations of the City of Birmingham.

All signs shall be properly stayed, bolted and anchored through the walls with proper supports of metal.

No sign shall project more than one foot over the property line, except electric or illuminating signs with one four candle power lamp for every foot of sign surface or its equal and be illuminated from dusk until 10 o'clock p. m. every day, may project eight feet over the property line; no sign shall be less than ten feet above the side wall and twenty feet above the street.

SEC. 420. SIGNS OR BILLBOARDS. No billboard within the fire limits shall be covered with any material but sheet metal.

No signs or billboards erected on upright or any other supports extending to the ground shall be at any point more than twelve feet above the surface of the ground and shall be properly supported and braced. There shall be an open space of six feet between each billboard and

any adjoining structure. There shall be an open space not less than two feet between any two billboards, no billboard shall exceed five hundred square feet in area. No billboard shall be nearer to the lot line on any street than the house line adjoining the same, and in no case less than fifteen feet from the street line.

ROOF SIGNS. No sign shall be placed on a roof of any structure, except it be constructed of metal, and such construction shall be of open mesh work and entirely approved in size and construction and fastenings by the Inspector of Buildings.

TEMPORARY CLOTH SIGNS for advertising purposes may be permitted on the front of buildings provided that such signs shall not when placed in position cover any door or window or part thereof and said sign shall be entirely of cloth. Existing signs and billboards are hereby given twelve months to comply with these requirements.

SEC. 421. ERECTING SIGNS. All persons hereafter erecting signs, awnings, marquee or sheds over the sidewalk or anywhere in the city limits shall hold the city harmless, on account of all damages to persons or property, and the permit issued temporarily only herefor shall state that the acceptance of same binds the applicants to this condition and obligation. Should this provision be omitted, or no permit secured, nevertheless any person hereafter erecting a sign, awning, marquee or shed of any size or description, shall be responsible to the city for any damage or judgment with the city may have to pay, on account of injury to persons or property, from the breaking or falling thereof. All such signs, awnings, marquee or shed shall be subject to removal at any time.

Signs that become defective shall be repaired or adjusted by the owner in a resonable time.

SEC. 422. SIGNS NOT TO INTERFERE WITH FIRE DEPARTMENT. Permission to erect signs shall not be granted which in any way interferes with the proper and convenient protection of property by the fire department. This applies not only to the protection of the building on which the sign is placed, but as well to contiguous, adjacent or neighboring buildings where such signs might be a menace or obstruction to the work of the fire department.

SEC. 423. IF OPERATIONS ARE DISCONTINUED ON BUILDINGS. In the event of the discontinuance of

building operations for a period of thirty days, or more, the Inspector of Buildings shall have authority to order the removal of all material and obstruction on the sidewalk and streets, in such a manner as he shall approve.

SEC. 424. BUILDING PERMITS shall not permit the use of any street or walk, or any part thereof, other than immediately in front of the lots, upon which the building is being erected, and then only to the extent of not exceeding one-third of the street from the lot line; when there are car tracks in the street all obstructions shall be kept back six feet from the nearest rail of said tracks.

SEC. 425. RIGHT TO TRESPASS. The Inspector of Buildings, and his deputies, assistants, or employees assigned by him, or persons assigned to co-operate with him so far as may be necessary for the performance of their duties, shall have the right to enter upon any building site or premises, or any new or unoccupied building, or any building under construction, repair, alteration, removal, or any building alleged to be unsafe or a menace to life or limb, or damaged or menaced by fire, upon showing their badge of office and any person or persons interfering with them in the performance of such duties shall be liable to the penalty provided in this Code.

SEC. 426. FIRE LIMITS AND REQUIREMENTS. No frame or wood building, shed, or structure shall be built, repaired or moved hereafter in the City of Birmingham within the fire limits, as the said limits now are or from time to time may hereafter be established, except as provided for in this Code.

SEC. 427. BIRMINGHAM FIRE LIMITS DEFINED. The fire limits of the city are hereby established and declared to be as follows:

Beginning at the intersection of thirteenth street and the railroads, thence north along thirteenth street to third avenue; thence east along third avenue to fifteenth street; thence north along fifteenth street to fourth avenue; thence east along fourth avenue to sixteenth street; thence north along sixteenth street to fifth avenue; thence east along fifth avenue to seventeenth street; thence north along seventeenth street to sixth avenue; thence east along sixth avenue to twenty-seventh street; thence south along twenty-seventh street to Powell avenue; thence west along Powell avenue to twenty-fourth street; thence south along twenty-fourth street to Avenue B; thence west along avenue B to twenty-second street;

thence south along twenty-second street to avenue E; thence west along avenue E to eighteenth street; thence north along eighteenth street to avenue B; thence west along avenue B to thirteenth street; thence north along thirteenth street to point of beginning.

SEC. 428. INNER FIRE LIMITS. There shall be formed an inner fire district known as Fire Limits No. 1 bound as follows: Beginning at the intersection of the railroads and sixteenth street; thence north along sixteenth street to third avenue; thence east along third avenue to seventeenth street thence north along seventeenth street to fourth alley; thence east along fourth alley to twenty-first street; thence along twenty-first street to fourth avenue; thence east along fourth avenue to twenty-second street; thence south along twenty-second street to second alley; thence east along second alley to twenty-fifth street; thence south along twenty-fifth street to avenue A; thence west along avenue A to twenty-fourth street; thence south along twenty-fourth street to alley A; thence west along alley A to sixteenth street; thence north along sixteenth street to the point of beginning.

There shall also be a fire district known as fire limits No. 2, said fire limits No. 2 to consist of that territory now in the fire limits of the City of Birmingham as provided by this section, and not included in fire limit No. 1, herein above described. All building done in either or both of said districts or limits shall be done in accordance with the provisions of this Code, except as may hereafter be provided.

SEC. 429. ENSLEY FIRE DISTRICT. That a fire district be established in the sixteenth ward of the City of Birmingham as follows:

Beginning at the intersection of the Birmingham Mineral Railroad right of way and fifteenth street extended; thence southeastwardly along fifteenth street to avenue I; thence southwestward along avenue I to twenty-seventh street; thence northwestward along twenty-seventh street to the Birmingham Mineral right of way; thence eastward along said right of way to the point of beginning.

That there shall be formed an inner fire limit known as fire district No. 1, bounded as follows:

Beginning at the intersection of the Birmingham Mineral Railroad right of way, and sixteenth alley extended; thence southeastward along sixteenth alley, ex-

tended to alley F; thence southwestward along alley F to eighteenth alley; thence southeastward along eighteenth alley to avenue I; thence southwestward along avenue I to nineteenth alley; thence northwestward along nineteenth alley to alley F; thence southwestward along alley F to twenty-second street; thence northwestward along twenty-second street to alley E; thence southward along alley E to twenty-third street; thence northwestward along twenty-third street to alley D; thence northwestward along alley D to twenty-first street; thence northwestward along twenty-first street to the Birmingham Mineral Railroad right of way; thence northeastward along said right of way to the point of beginning.

That there shall also be a fire district known as fire district No. 2, consisting of that territory now in the fire limits of the sixteenth ward of the City of Birmingham not included in fire district No. 1, hereinabove described.

Be it further ordained, that in fire limit or district No. 2, of the sixteenth ward of the City of Birmingham, that frame dwellings and outbuildings may be erected and that frame dwellings and outbuildings now erected may be repaired or improved by frame additions not exceeding one-fourth their present floor areas, whenever the Inspector of Buildings shall, upon careful inspection of said buildings, find them to be in good condition and find that the same may be allowed without materially increasing the danger from fire and such buildings or additions to frame buildings or otherwise unobjectionable, but in no case shall any new roof be allowed or repairs to any roof that is damaged more than ten per cent, without the same be of fireproof material.

SEC. 430. WYLAM FIRE DISTRICT. That a fire district be established in the sixteenth ward of the City of Birmingham in the former town of Wylam as follows:

Beginning at the intersection of ninth avenue or avenue A with Annie or forty-fifth street, thence in an easterly direction along said ninth avenue to its intersection with Agnes or forty-second street; thence in an northerly direction along said Agnes, or forty-second street to its interesction with Martin or fifth avenue; thence in a westerly direction along said Martin or fifth avenue to its intersection with second or forty-sixth street; thence along said second or fifty-sixth street in a southerly direction to its intersection with Manilla or ninth avenue; thence along said Manilla or ninth avenue in a easterly direction to Annie or forty-fifth street; thence along said

Annie or forty-fifth street to point of beginning at ninth avenue or avenue A.

That there is hereby established an inner fire limit to be known as Wylam fire district No. 1, bounded: Beginning at the intersection of the center of sixth avenue with the northwesterly line of the right of way of the Birmingham Southern Railway Company, thence in a westerly direction along said sixth avenue to its intersection with Annie or forty-fifth street, thence in a southerly direction along said Annie or forty-fifth street to its intersection with Powell or eighth avenue, thence in an easterly direction along said Powell or eighth avenue to its intersection with George or forty-fourth street thence in a northerly direction along said George or forty-fourth street about one hundred and fifty feet to an intersecting alley, thence in an easterly direction along said alley to its intersection with William or forty-third street, thence in an northerly direction along said William or forty-third street about three hundred and fifty feet to an intersecting alley, thence in a westerly direction along said alley to the southeasterly boundary line of the said Birmingham Southern Railroad Company right of way, thence in a straight line to point of beginning at said intersection of said sixth avenue and said Birmingham Southern Railroad Company right of way. That all of the territory in the Wylam fire district of the sixteenth ward of the City of Birmingham not included in Wylam fire district No. 1 hereinabove described shall be known as Wylam fire district No. 2.

That in said Wylam fire district No. 2 of the sixteenth ward of the City of Birmingham that frame dwellings and outbuildings may be erected and that frame dwellings and outbuildings now erected may be repaired or improved by frame additions not exceeding one-fourth their present floor area whenever the Inspector of Buildings shall, upon careful inspection of said building, find them to be in good condition and find that the same may be allowed without materially increasing the danger from fire and such buildings or additions to frame buildings are otherwise unobjectionable, but in no case shall any new roof be allowed or repairs to any roof that is damaged more than ten per cent. without the same be of fireproof material.

That a fire district be established in the twelfth ward of the City of Birmingham in the former town of Woodlawn. Beginning at the intersection of 54th street and the A. G. S. Railroad; thence east along the A. G. S.

Railroad to 57th street; thence northerly along 57th street to 1st avenue; thence west along 1st avenue to 56th or Church street; thence northerly along Church street to Sherrod street; thence southerly along Sherrod street to the intersection of 3rd avenue and Halstead street; thence southerly along Halstead street to 1st avenue; thence east along 1st avenue to 54th street; thence south along 54th street to point of beginning.

That there is hereby established an inner fire limit to be known as Woodlawn fire district No. 1. Beginning at the intersection of Hood or 54th street and Woodlawn avenue; thence eastwardly along Woodlawn avenue to 56th street; thence northerly along 56th street to the intersection of 1st and 3rd avenues; thence northwesterly along 3rd avenue to Staton street; thence southwesterly along Staton street to Hood or 54th street; thence south along Hood or 54th street to point of beginning.

That a fire district be established in the twelfth ward of the City of Birmingham in the former town of East Lake as follows: Beginning at the intersection of Hillman avenue and 75th street; thence northward along 75th street to 2nd avenue; thence eastward along 2nd avenue to 78th street; thence southward along 78th street to Hillman avenue; thence westward along Hillman avenue to point of beginning.

That there is hereby established an inner fire limit to be known as East Lake fire district No. 1. Beginning at the intersection of Sloss avenue and 76th street; thence northward along 76th street to 1st alley; thence eastward along 1st alley to 78th street; thence southward along 78th street to Sloss avenue; thence westward along Sloss avenue to point of beginning.

That in said Woodlawn and East Lake fire districts No. 2, of the twelfth ward of the City of Birmingham, that frame buildings and outbuildings may be erected and that frame dwellings and outbuildings now erected may be repaired or improved by frame additions not exceeding one-fourth their present floor areas, whenever the Inspector of Buildings shall upon careful inspection of said buildings, find them to be in good condition and find that the same may be allowed without materially increasing the danger from fire and such buildings or additions to frame buildings are otherwise unobjectionable, but in no case shall any new roof be constructed in said fire district of anything but fireproof material. And no roof in said districts which is endangered by fire or other-

wise more than ten per cent. shall be repaired with anything except fireproof material.

SEC. 431. SMALL OUTHouses OF WOOD.

Exterior privies, and wood or coal houses, and stables, not exceeding one hundred and fifty square feet in superficial area and eight feet high, may be built of wood, but the roofs thereof shall be covered with metal or slate, in the fire limits and temporary one-story frame buildings may be erected for the use of builders, within the limits of lots whereon buildings are in course of erection, or on adjoining vacant lots, or on such part of a street or alley as the builder may be allowed to obstruct under the requirements of this Code and upon permit issued by the Inspector of Buildings. All such buildings to be removed upon the completion of the main structure.

Open or metal clad sheds having metal or other approved roofing with floor area not exceeding 500 square feet may be allowed when same are at least ten feet distant from the street line or any adjoining building.

SEC. 432. DAMAGE TO FRAME BUILDINGS IN FIRE LIMITS. Whenever any frame buildings within the fire limit shall have become damaged from any cause to the extent in the judgment of the Inspector of Buildings, of one-half of present value of such buildings, if the owner of the building objects to the conclusions arrived at by the Inspector of Buildings, the owner shall select some competent contractor, builder or architect who, with the Inspector of Building shall have power to appoint a umpire and if they cannot agree, the president of the Board of Commissioners shall appoint the said umpire, and they shall make an examination of the building and make a report asto the amount of damage. Whenever such building shall be adjudged by such arbitrators to have been damaged to the extent of one-half of its value such buildings shall be condemned by the Inspector of Buildings, and it shall be unlawful to repair the same.

REPAIRS ON FRAME BUILDINGS in the fire district may be made involving the substitution of material or work made necessary by ordinary wear and tear, and that frame buildings damaged by fire or other similar causes, less than one-half of the value of said building, exclusive of the foundation, the walls of said building may be repaired, but no alteration or change in plan or size of such structure shall be made or other changes which may involve the use or uses other than those for which the structure was originally intended.

SEC. 433. ROOF IN THE FIRE LIMITS. That where any roof in the fire district is damaged so as to be repaired, if the damage exceeds ten per cent. the whole roof shall be recovered or repaired with fireproof material.

SEC. 434. FIRE DISTRICT No. 2. That wooden dwelling already permitted and now maintained within may be improved by wooden addition not exceeding one-fourth their present floor areas whenever the Inspector of Buildings shall, upon careful inspection of said buildings, find them to be in good condition, and shall find that the same may be allowed without materially increasing the danger by fire and such additions are otherwise unobjectionable, but in no case shall any new roof be allowed or repaired to any roof that is damaged more than ten per cent., without the same being of fireproof material.

SEC. 435. FRAME CONSTRUCTION, AREA FOR FRAME BUILDINGS. No frame buildings hereafter erected for any occupancy other than grain elevators, coal elevators, and pockets, ice houses and exhibition buildings, and being not over thirty-five feet in height, shall cover a ground area exceeding the following: One-story building, seventy-five hundred square feet, and two-story building, five thousand square feet.

SEC. 436. HEIGHT OF FRAME BUILDINGS Two-story frame buildings may be erected to a height not exceeding thirty-five feet, said height being taken from the curb line, where same exists, at the center of the front or side buildings on which main entrance to upper floors is located.

Where the walls of the building do not adjoin the street or building line then the average level of the ground on which the building stands may be taken in place of the curb line.

The measurement for height shall be to the highest point of the roof beams in case of flat roof buildings, and to the average height of gable or roof in case of pitched roofs.

Towers, turrets and minarets of wood may be erected to a height not to exceed ten feet greater than the foregoing limited height. Except the spires of churches may be erected of wood to a height not exceeding seventy-five feet from the ground.

Proper foundation of masonry shall be prepared for the support of buildings, and no foundations shall be less than one foot below the exposed surface of the ground, and in no case shall any foundation rest on any filling

or made ground, unless approved by the Inspector of Buildings. The breadths of the foundations of the several parts of any building shall be proportioned so that, as nearly as practicable, the pressure shall be equal on each square foot of the foundation. Cement mortar shall be used in the masonry of all foundations exposed to dampness and to grade.

SEC. 437. FOOTINGS FOR FRAME BUILDINGS.

All footings shall be at least six inches wider on each side than bottom width of foundation walls above, except where the outside of the foundation wall sets on the property line, in which case ten inches wider on the inside shall be sufficient. The thickness of the footing shall be not less than eight inches.

SEC. 438. VENEERED BUILDINGS. Veneered frame buildings shall have foundation walls not less than twelve inches thick, with sills sitting back from outside of wall six inches and sheeted up outside with sheathing boards seven-eighths inch thick, put on, and the brick work tied back to the sheathing every sixth course with iron and anchors, one to each brick. All openings must be closed in with either brick arches, stone or iron, brick must not in any case be supported with wood.

IN FRAME BUILDINGS not over two stories in height, having basement walls not over twelve feet high, the said basement walls may be built of brick or Portland cement, concrete nine inches in thickness, provided with proper buttresses or cross walls for support, with centers not over eight feet apart. In the event the basement walls are over twelve feet high the same shall be governed by this Code relating to thickness of walls. All concrete walls for foundation walls may be ten per cent. less than the thickness required for brick walls in frame buildings only.

SEC. 439. FOUNDATION WALLS supporting frame structures if of rubble-stone not over eight feet high and twelve inches thick, over eight feet high and eighteen inches thick, for foundation, and top story sixteen inches thick, all to be bonded with through headers and laid in cement mortar.

SEC. 440. THE SILLS OF ALL FRAME BUILDINGS except where the first floor is used for business purposes, shall be not less than one foot above the ground to the under side of same.

All frame or wood buildings exceeding a height of fifteen feet shall be built with sills, posts, girts, plates and rafters, all of suitable size and properly framed and braced with suitable studs or planks, set at proper distance apart, as approved by Inspector of Buildings.

In all frame buildings hereafter erected exceeding one story in height the studding shall be capped at second floor and roof line with a plate not less than four inches thick and the same width as the studding on which it rests.

The floor joists shall be placed directly on the plate. The use of ribbon boards to support the floor joists is hereby prohibited, unless filled solid between studding with blocking.

SEC. 441. SIZE OF JOISTS, SILLS AND PIERS IN FRAME RESIDENCES. floor joists:

2 by 6, not over 12 feet between bearings.

2 by 8, not over 16 feet between bearings.

2 by 10, not over 22 feet between bearings.

All trimmers and headers shall be doubled and under all partitions, unless provided with center supports.

Ceiling joists:

2 by 4, not over 12 feet.

2 by 6, not over 20 feet.

Unless provided with supports as may be directed by the Inspector of Buildings. Sills not resting on solid wall shall have piers not over eight feet centers sill for one story. Frame residences 4 by 8 for two story frame residences, 4 by 10 with 2 by 4 for bearings unless otherwise ordered by the Inspector of Buildings. All frame buildings not storm sheathed shall be braced at all corners and angles, or as required by the Inspector of Buildings.

SEC. 442. PIERS. All piers shall be built of good, hard, well-burnt brick. All brick piers under frame dwellings and retail stores shall be of the following dimensions, not over 8 feet on centers, unless otherwise approved:

8 by 12 inch piers not over 5 feet above ground.

8 by 16 inch piers not over 7 feet above ground.

12 by 12 inch piers not over 8 feet above ground.

12 by 16 inch piers not over 10 feet above ground.

12 by 24 inch piers not over 12 feet above ground.

All piers to have a footing course projecting not less than four inches, when built on solid foundation of clay.

When piers are built on filled ground, footings shall be of such material and dimensions as shall be determined by the Inspector of Buildings. No four inch curtain walls between piers over eight feet in height will be allowed.

SEC. 443. THE REGULATIONS APPLYING TO BRICK BUILDINGS governing heating, shall also apply to frame buildings.

SEC. 443¹/₂. FRAME HOTELS, APARTMENT HOUSES AND ASSEMBLY PLACES OUTSIDE FIRE LIMITS. Within the said portions of the City of Birmingham, hotels, apartments hotels, apartment houses for occupancy by not more than six families, and places of public assembly, none of said buildings to exceed two stories or more than thirty-five feet in height, may be built of wood; but shall in all other respects comply with the several provisions of this Code, relating to such structure.

SEC. 444. FRAME BUILDINGS FOR ORDINARY USE. But for all other buildings or structures only so much if the requirements, regulations and restrictions of this Code shall apply as in the opinion of the Inspector of Buildings may be necessary for safety and health.

SEC. 445. FIRE LIMITS OR DISTRICT NO. 3. There shall be established an outer fire limit or district to be known as No. 3 fire limit of district, to regulate combustible roofing only, and the same shall include all that portion of the City of Birmingham not now included in any fire limit or as may hereafter from time to time be included in any limit or districts No. 1 or No. 2, and any building or part of any building or structure now or hereafter erected in fire limit No. 3 that is within less than five feet of a party property line or within ten feet of another building or structure, the roof, if to be recovered or covered, shall be covered with fireproof material. And any roof located as hereinbefore stated that is damaged from any cause as much as twenty per cent., if repairs are desired, the same shall be repaired or recovered with fireproof material.

SEC. 446. ORDINARY REPAIRS. Ordinary repairs of buildings or structures costing less than twenty five (\$25.00) dollars may be made without notice to the Inspector of Buildings, but such repairs shall not be construed to include the cutting of any stone or brick, wall or pier, or any portion thereof, the removal or cutting of any beam or supports, or the removal or changing or closing any staircase or the alteration of any building, structure, chimney, flue or heating apparatus or the repairing or recovering of any building in the fire limit.

SEC. 447. CHIMNEYS. All chimneys shall be built of brick, stone or other incombustible material, and whether built inside or outside of buildings, or whether connected with the same or isolated, shall have foundation designed and built in conformity with the provision relative to foundations of buildings given in this Code.

Chimneys in all buildings shall have walls at least eight inches thick, if of brick, unless terra cotta or fire-clay flue linings are used, in which case four inches of brick work may be omitted. Chimneys other than those built of brick shall have walls at least eight inches thick, and shall have an additional lining of four inches of brick work or terra cotta or fire-clay flue linings.

All chimneys or smoke flues occurring in masonry walls shall have a wall eight inches thick at the back, and when corbeled out, shall be supported by at least five courses of brick, but shall not be corbeled over a wall more than two-thirds of the thickness of the wall; and if supported by piers, the same shall start from the foundation on the same face with the chimney above. All chimneys occurring in brick walls shall be bonded to the walls at every fifth course from the bottom to the top in regular bond. Jambs for chimneys shall be twelve inches or more thick except in one-story buildings which may be nine inches.

All hearth for ordinary fireplaces shall rest on trimmer arches. The header kept at least twenty-one (21) inches from face of chimney breasts; provided hearth boxes will be allowed, if six (6) inches of solid cement or concrete is used, all wood must be removed under hearths. The back of all fireplaces shall not be less than eight (8) inches thick exclusive of lining and all fireplaces shall be lined with fire brick.

SEC. 448. CHIMNEY FLUE. Chimneys and flues for the entire height shall have the brick laid flat and built solid with flue exception.

SEC. 449. FLUES AND CHIMNEYS TO HAVE A TERRA COTTA LINING. Every smoke flue shall be lined on the inside with either cast iron or fireproof terra cotta pipe from the bottom of the flue, or from the throat of the fireplace, if the flue starts from the latter, the foregoing is to apply only to flues having four inch brick walls or walls other than brick and carried up continually to the extreme height of the flue or chimney. The ends of all such pipe linings shall be made to fit close together, and the lining shall be built in as the flue or flues are carried up. Each smoke pipe shall be inclosed on all sides

with not less than four inches of brick work or its equal properly bonded together. When more than two flues in any chimney two flues may go together, but every chimney shall have one with wall laid flat and bonded to outside walls.

SEC. 450. INLET TO FLUES. No flue shall have but one inlet, unless in same room and all inlets to have proper thimble and stopper. All thimbles and brick around the same to be corbled flush with wall.

No chimney flue shall be less than eight inches in diameter when used as a smoke flue. No furnace or boiler flue shall be less than eight by twelve inches.

SEC. 451. ANY CHIMNEY OR FLUE not forming part of an incombustible wall shall rest upon the ground with proper foundation, except single flues may be hung on two by eight inch joist with iron stirrups of new iron of not less than three-eighths of an inch by two inches bent to come flush with the bottom of ceiling with six cross bars three-eighths by two inches, seventeen inches long and with seventeen by seventeen inch galvanized iron plate, No. 28 Gauge on top of those bars or any other plate equally as good, For which final inspection shall be requested and made and an approval obtained by the builder or owner. All chimneys and flues shall be topped and at least three feet and six inches from any wood on a straight line to the nearest point of the top of flue. The top of all flues and chimneys from the roof line to be laid in cement or cement and lime mortar and hanging flues arched over. All chimneys and flues and foundations for the same shall be built solid where no lining or opening is required and intersections between brick and lining well grouted with mortar.

SEC. 452. APPEALS AND MODIFICATIONS. The Inspector of Buildings shall have power, and it shall be his duty to pass upon any question relative to the mode or manner of construction, or materials to be used in the erection, alteration of any building or other structure erected, or to be erected within the City of Birmingham, which is included within the provisions of this Code, and other ordinances, and the regulations of the Department of Buildings, relating to the construction, alteration or removal of buildings or other structure, and to require that such mode or manner of construction or materials shall conform to the true intent and meaning of the several provisions of this Code, and other ordinances and rules and regulations of the Department of Buildings. When-

ever the Inspector of Buildings to whom such questions have been submitted shall reject or refuse to approve the mode or manner of construction proposed to be followed, or materials to be used in the erection or alteration of any such building or structure, or when it is claimed that the rules and regulations of the Department of Buildings or the provisions of this Code or any of the ordinances or regulations do not apply, or that an equally good and more desirable form of construction can be employed on any specific case, or when it is claimed that the true intent and meaning of this Code or any of the ordinances and regulations have been misconstrued or wrongly interpreted, the permit applied for having been refused by the Inspector of Buildings, then the owner or lessee of such building or structure, or his duly authorized agent, may appeal from the decision of the Inspector of Buildings. In case where the amount of the total cost of the alteration of new building or structure shall exceed the sum of five hundred (\$500.00) dollars to an examining board.

EXAMINING BOARD. The appeal authorized by this Section may be taken within ten days from the entry of a decision upon the records of the Department of Buildings by filing with the Inspector of Buildings a notice of appeal, stating specifically the question or questions which the applicant desires to have passed upon by the examining board and requesting the appointment of an Examining Board, and accompanying the same by the sum of thirty (\$30.00) dollars. And thereupon the Inspector of Buildings shall appoint a disinterested and competent architect, civil engineer or builder, the applicant shall appoint a second and the two so chosen shall select a third; in case they cannot agree, the Board of Commissioners to appoint the third. The said examiners shall each take the usual oath of office before entering upon the performance of their duties. They shall meet in the office of the Inspector of Buildings and the applicant, or his representative, or both, may appear before the said board and be heard. The Board shall consider such appeal and as soon as practicable render a decision thereon. The said board is hereby authorized and empowered to grant or reject such an appeal, and a decision of a majority of the members of the board, reduced to writing, and addressed to the Inspector of Buildings, shall be final and conclusive. If such decision be favorable to said petitioner, a permit shall be issued by the Inspector of Buildings in accordance therewith. Each of the three examiners shall receive for his services ten

dollars (\$10.00) from the money deposited with the Inspector of Buildings for that purpose.

SEC. 453. GAS AND WATER PIPES. No gas, water, plumbing or electrical, or other pipes which may be introduced into any building shall be let into wood beams unless the same be placed within six inches of the end of the beams; unless by the approval of the Inspector of Buildings. And in no building shall the said pipes be let into any beam more than two inches of its depth.

SEC. 454. BRICK BUILDINGS OUTSIDE OF FIRE LIMITS. Outside of fire limits when any brick stone or concrete building is to be erected of a class that could under this Code be constructed of wood the Inspector of Buildings is hereby authorized and directed to allow reasonable modifications of this Code relating to brick buildings in consideration of incombustible material being used for walls instead of wood.

SEC. 455. That if any section or provision of this ordinance should be held void or invalid if shall not affect or destroy the validity of any other section or provision hereof which is not of itself void or invalid.

That all ordinances or resolutions or parts of same in so far as conflict with any provision hereof are hereby repealed.

SEC. 456. That any person, firm or corporation or their agent or employee violating any section or provision of this ordinance shall upon conviction be punished as provided in section 806 of the City Code.

Adopted April 10, 1912.

C. EXUM, Pres. Board of Commissioners.

A. O. LANE, Commissioner.

JAMES WEATHERLY, Commissioner.

Attest:

H. S. Ryall, City Clerk.

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